Fire Management Plan

US DOI NATIONAL PARK SERVICE GLACIER NATIONAL PARK



June 2010

Authorization for Implementing the Fire Management Plan

This plan has been reviewed and accepted for 2009 on the dates indicated below:



/s/ Chas Cartwright
Superintendent, Glacier National Park,

7/1/10 Date

Fire Management Plan 2010 Updates

This plan was originally developed as a joint Interagency Fire Management Plan (FMP) between the Flathead National Forest and Glacier National Park (2003-2009). Differing agency direction regarding FMP component inclusion in the FMP necessitated each agency to revert to each having a single agency plan. The long range plan is for the two agencies to work together to develop a Joint Operations Guide which will contain much of the information in this FMP's appendices and will be an interagency in nature. Work will begin on this document in over the 2010-2011 winter months.

This plan is primarily intact from 2009 but with updates to terminology and decision/documentation procedures. The Wildland Fire Implementation Plan (WFIP) and Wildland Fire Situation Analysis (WFSA) for documenting management decisions, is replaced with the Wildland Fire Decision Support System (WFDSS).

This plan utilizes the 2003 RM-18 template which is not consistent with the 2008 FMP template. When the updated NPS FMP template is released, the plan will be re-written to current standards. It is anticipated that a major revision will occur in 2011.

Federal Policy has been modified, as summarized below:

Terminology has changed - Wildland fire is a term describing any non-structural fire that occurs in the wildland. Wildland fires are now categorized into two distinct types:

- Wildfires = Unplanned ignitions, as well as planned ignitions that are declared wildfires. The wildfire term is to be applied to all unplanned ignitions, including events formally termed wildland fire use.
- Prescribed fires = Planned ignitions.

A wildland fire, or portions of a wildland fire, may be concurrently managed for one or more objectives (e.g., cost, safety, resource benefits). Those objectives, and the ability of a fire to meet those objectives, can change as the fire spreads across the landscape, encountering new fuels, weather, social conditions, and governmental jurisdictions.

Every wildland fire will be assessed following a decision support process that examines the full range of potential responses. The decision support process is known as Wildland Fire Decision Support System (WFDSS).

Table of Contents:

i.	Lis	st of Figures	X
ii.	Lis	st of Tables	xii
iii.	Ex	ecutive Summary	xiii
l.	Int	roduction	1
	A.	Need and Purpose of the Fire Management Plan	1
	В.	Collaborative Process and Opportunities	3
	C.	Resource Management and Fire Management Goals	4
	D.	Compliance with National Environmental Policy Act and Other Relevant Laws	4
	E.	Authorities for Implementing the Fire Management Plan	5
II.	Re	elationship to Land Management Planning and Fire Policy	6
	A.	Wildland Fire Management Policy	6
	В.	Purpose of the Units and Resource Values	6
	C.	Goals and Objectives Provided by the Land and Resource and General Management Plans	7
		Objectives of Cultural and Natural Resource Management Plans and the Fire Management Plan	7
III.	Wi	Idland Fire Management Strategies	8
	A.	General Management Considerations	8
	В.	Wildland Fire Management Goals	9
	C.	Wildland Fire and Fuels Management Options	13
		1. Wildland Fire	14
		2. Fuels Management	.15

	D.	Fii	e Management Units and Strategies	16
		1.	Fire Management Unit A – Wilderness / Resource Benefits	17
		2.	Fire Management Unit B – Mixed Values	18
		3.	Fire Management Unit C – Developed Areas	18
IV.	Wi	ldla	and Fire Management Program Components	19
	A.	Ge	eneral Implementation Procedures	19
	В.	W	Idland Fire Suppression	19
		1.	Range of Potential Fire Behavior	19
		2.	Preparedness Actions	20
		3.	Pre-Attack	23
		4.	Initial Attack	24
		5.	Extended Attack and Large Fire Suppression	28
		6.	Minimum Impact Suppression Tactics (MIST)	30
		7.	Emergency Rehabilitation and Restoration	31
		8.	Fire Records and Reports	31
	C.	Us	se of Wildland Fire	32
		1.	Objectives of the use of wildland fire and Relationship to Land and Resource Management Direction.	33
		2.	Parameters for use of wildland fire	33
		3.	Pre-Planned Actions for Implementation of the Wildland Fire Use Program	33
		4.	Use of wildland fire Implementation Procedures	33
		5.	Potential Impacts of the Use of Wildland Fire	34
		6.	Organization Necessary to Implement the	

		Multiple Objective Fire Program	.34
		7. Public Information and Interpretation of the Wildland Fire Use Program	35
	;	8. Wildfire Project Record	36
	D. I	Prescribed Fire	36
		Prescribed Fire Planning and Documentation	37
		2. Exceeding Parameters of the Prescribed Fire Plan	43
	;	3. Air Quality and Smoke Management	43
	E. 1	Non-Fire Fuel Treatment Applications	45
		Mechanical Treatment and Other Applications	45
V.	Fire	Management Organization and Budget	.46
	Α. (Organizational Structure of the Fire Management Programs	.46
	В. І	Fire Program Funding	46
	C.	Fire Management within the Greater Organization	47
	D. I	Responsibilities for Fire Management Decisions	47
		1. Wildland Fires	47
	;	2. Prescribed Fires	48
	;	3. Non-Fire Fuel Treatment	48
	•	4. Programmatic Plans	48
		Interagency Coordination Necessary to Implement the Fire Management Plan	48
	F. (Cooperation4	19
		1. Interagency Cooperators and Partners4	19
	G. 1	Fire Agreements5	50

		1.	Montana Cooperative Fire Management Agreement	50
		2.	Other Fire Related Agreements	50
VI.	. Mo	onit	oring and Evaluation	51
	A.	Fir	re Management Program Monitoring Requirements	51
VII	l .	Fir	e Research	52
	A.	Pr	evious and Ongoing Research	52
	В.	Ne	eeded Research	53
	C.	Fir	e History of the Units	53
VII	II. P	ubl	ic and Employee Safety	53
	A.	Sa	fety Concerns Associated with Fire Management Program	53
		1.	Public Safety	54
		2.	Firefighter Safety	54
	В.	Mi	tigation of Safety Hazards and Risks	55
IX.	Pu	ıblic	Involvement, Information and Education	56
	A.	Lo	cal Public Involvement	56
	B.		ablic Information Planning in Response to Increased re Danger and Activity	56
		1.	Media Coordination	57
Χ.	Pr	ote	ction of Sensitive Resources	57
	A.	Ge	eneral Management Considerations	57
		1.	Cultural Resources	59
		2.	Sensitive Natural Resources	60
		3.	Infrastructure, Developments, In-holdings and Other Improvements	60

XI. Fire Reviews and Annual Plan Review			
A. After-Action Reviews	61		
B. Incident Management Team Closeout and Performance Evaluation	62		
C. Significant Event Reviews	62		
Significant Event Reviews	62		
2. Entrapment or Fire Shelter Deployment Review	63		
D. Fire Management Plan Review	63		
XII. Consultation and Coordination	63		
A. Fire Management Plan Writing and Editing	63		
Fire Management Plan Development	63		
2. Forest, Park, and Interagency Contacts and Consultants	63		
XIII. Appendixes	66		

i. List of Figures

- Figure 1 Glacier National Park and Flathead NF Vicinity Map (page 2)
- Figure 2 Glacier National Park Fire Management Units (Appendix 3.D.2)

ii. List of Tables

- Table 1 Records and Reports (page 33)
- Table 2 Fire Behavior Monitoring Criteria (page 41)

iii. Executive Summary

Fire management policies of the National Park Service (NPS support the park's resource management goals. An overriding goal is restoration or maintenance of natural ecosystems, while providing for firefighter and public safety, protection of natural and cultural resources, and human developments from wildfires.

This Fire Management Plan contains the following program direction:

- To guide a agency decision-making process where safety, social, political, and resource values are evaluated; and management response strategies are identified for wildland fires in all fire management units; including a strategy for all wildfires.
- 2. To provide a framework for hazard fuels management strategies and for restoring wildland fire to fire-dependent ecosystems.
- 3. To provide an interagency platform from which to cooperate more fully in planning and implementing a wildland fire program across agency boundaries.

Program operations included in the plan are preparedness, prevention, detection, suppression, fuels management, including mechanical treatments and fire use (both prescribed fire and wildfire to achieve resource benefits). Applicable resource goals and objectives are derived from approved agency resource and general management plans.

The Plan is organized to combine the latest scientific knowledge, including regional and local studies, with a hierarchy of policy direction, from departmental and agency to the Federal Wildland Fire Policy (1995 & 2001 revision), to accomplish resource and fire management goals and objectives. The intent of the plan is primarily operational in nature providing guidance to NPS fire and resource management staffs.

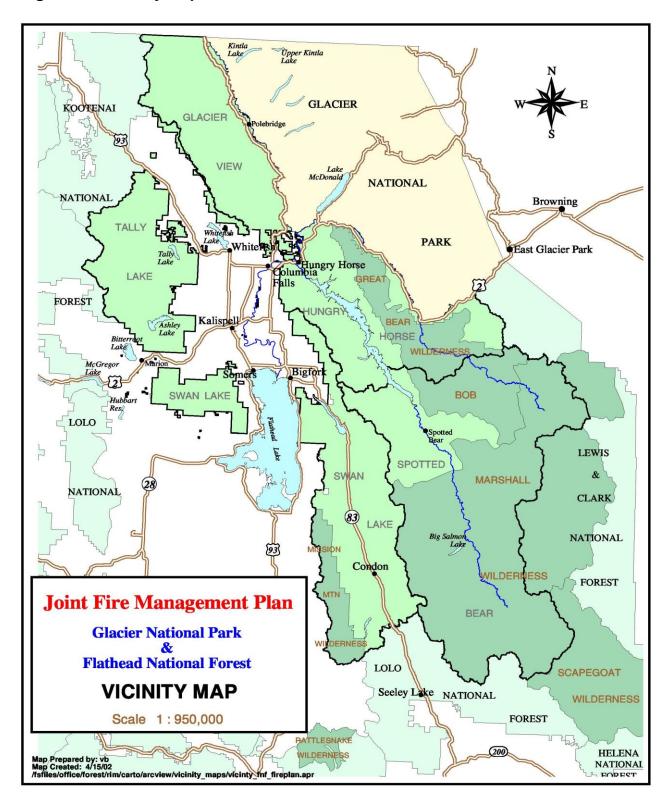
I. INTRODUCTION

A. Need and Purpose of the Fire Management Plan

National Park Service Management Policies 2006, section 4.5 and supplemented by this Director's Order #18 states: "Each park with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support its fire management program. Parks having an approved Fire Management Plan and accompanying National Environmental Policy Act (NEPA) compliance may utilize wildland fire to achieve resource benefits in predetermined fire management units. Parks lacking an approved Fire Management Plan may not use resource benefits as a primary consideration influencing the selection of a suppression strategy, but they must consider the resource impacts of suppression alternatives in their decisions."

This plan provides a framework for management of wildland and prescribed fire to safely accomplish both resource protection and resource management objectives on NPS lands administered by Glacier National Park. (see Figure 1 - Vicinity Map). This Fire Management Plan (FMP) is an appendix to Glacier National Park's Resource Management Plan (RMP).

Figure 1 - Vicinity Map



B. Collaborative Process and Opportunities

1. Coordination and Cooperation

Between 2003 and 2009, Glacier National Park and the Flathead National Forest had a single, Interagency Fire Management Plan. In 2010 differing agency direction regarding Fire Management Plan component requirements necessitated each agency to have their own agency specific plans. This plan was developed in coordination with the FNF.

Each agency bordering Glacier National Park, upon request of the other and within their capabilities, will assist the other with emergency fire suppression, adhering to the standards of the requesting unit. When land of one unit is threatened by fire on the other unit, the threatened unit may reinforce or relieve the unit at the scene without expectation of reimbursement. Upon request, each unit will provide the other with fire reports, incident reports and other pertinent records related to the agreement. When a fire crosses or poses an imminent threat of crossing jurisdictional boundaries, a joint delegation of authority to a single Incident Commander or a unified command will be established by involved agencies. Agencies will keep each other informed of changing conditions. The Kalispell Dispatch Center Operating Plan and Lewis and Clark National Forest/Glacier National Park/Blackfeet Fire Management Annual Operating Plan will be referenced to identify mutual threat zones, policies, standards and procedures for fire-cause investigation, communications and reports.

a. Shared Fire and Aviation Management Positions

Interagency organizational coordination and cooperation are integral to successful implementation of fire management programs. While the agencies funding mechanisms are different, coordination of budget submissions will help fund and establish shared or cooperative positions. As funding allows, the Flathead National Forest (FNF) Glacier National Park, and Blackfeet Fire Management will pursue shared positions such as helitack module members, engine crews, wildland fire and prescribed fire monitors, an interagency aviation manager and a fire information specialist to further increase program efficiency and cost effectiveness. Many wildland and prescribed fires will require additional support by other interagency cooperators.

C. Resource Management and Fire Management Goals

This plan will implement fire management policies and help to achieve resource management and fire management goals defined in:

- Guidance for Implementation of the Federal Wildland Fire Management Policy (February, 2009)
- Federal Wildland Fire Managmenent Policy and Program Review (2001)
- Protecting People and Sustaining Resources in Fire-Adapted Ecosystems, <u>A Cohesive Strategy</u>, (US Forest Service, October 13, 2000)
- Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems

 – A Cohesive Strategy (USDOI/USDA); and
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan.
- Interagency Standards for Fire and Fire Aviation Operations (The Red Book).
- National Park Service Reference Manual-18: Wildland Fire Management
- Foundational Doctrine and Guiding Principles for The Northern Region Fire, Aviation and Air Program
- Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (September, 2006)

D. Compliance with National Environmental Policy Act and Other Relevant Laws

Glacier National Park are provided policy direction in The <u>Federal Wildland Fire Management Policy</u>, 1995 which requires development of a Fire Management Plan (FMP) for all National Park Service lands with burnable vegetation.

Compliance requirements with National Environmental Policy Act (NEPA) guidelines have been satisfied through development of an Environmental Assessment (EA) for Glacier National Park. These requirements ensure a prudent assessment and balance between a federal action and any potential effects of that action, leading to consensus between agency administrators, fire managers, resource specialists, and the public regarding this interagency fire program. Any constraints or limitations imposed on the fire management program are also identified.

National Historic Preservation Act. Glacier National Park fire management actions will be implemented in accordance with regulations and directions

governing protection of historic and cultural properties outlined in the Department of the Interior, Departmental Manual, Part 519 and Title 36 of the Code of Federal Regulations; National Historical Preservation Act, Section 106. Clearance procedures will be followed for any fire management activity that could affect historic, cultural or archeological resources.

National Environmental Policy Act. Prescribed burns and mechanical fuel reduction projects may require a complete biological assessment if an action may adversely affect a threatened or endangered species

E. Authorities for Implementing the Fire Management Plan

The Organic Act of the National Park System (United States Code, Title 16, Section 1) gives authority to the parks to:

"...promote and regulate the use of the federal areas known as national parks, monuments, and reservations....by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The specific enabling legislation for Glacier National Park (United States Code, Title 16, Section 162) gives the Secretary of the Interior the duty to ensure:

". . . the preservation of the park in a state of nature so far as is consistent with the purposes of this act, and for the care and protection of the fish and game within the boundaries thereof."

The Management Authorities, Director's Order 18 (November 1998) and Reference Manual 18 (February 1999) are the guiding documents for wildland Fire Management Plan implementation. The park's fire management objectives conform to the referenced documents.

Reference Manual 18 adds that the Fire Management Plan will reflect NPS policies and "the specific characteristics, legislative obligations, environmental, and social considerations" for each particular area.

II. RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

A. Wildland Fire Management Policy

Fire management policy is provided to the agencies through interagency (federal) sources and agency-specific direction found in the Federal Wildland Fire Policy (1995 & 2001) and Guidance for the Implementation of Federal Wildland Fire Management Policy (2009) Fire Management Planning, preparedness, prevention, wildfire, prescribed fire, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.

This Fire Management Plan provides direction for how a wide range of fire management actions will be accomplished in the park. The Fire Management Plan provides for a range of fire management actions and how each may be considered during the planning process. The Federal Wildland Fire Policy provides a full range of wildland fire management options to consider, from aggressive suppression to managing wildfires for resource benefits.

The policy does not limit the options available during the implementation process, which is the selection and application of a management response to a specific fire. Direction provided in the Fire Management Plan and existing conditions will determine the range of options available to managers for a given wildland fire event or fuel management opportunity. National Park Service Management Policy is provided through Directors Orders 18 (DO18) and Reference Manual 18 (RM18).

B. Purpose of the Units and Resource Values

Glacier National Park is located in northwestern Montana in the Rocky Mountain Province. The current mountain and valley landforms originated from block fault uplifting and glaciation from the last ice age. The park is bounded on the west and south east by the Flathead NF, the east by the Blackfeet Reservation and Lewis and Clark NF, and to the north by Waterton Lakes National Park and Provincial lands of Alberta and British Columbia, Canada.

The 1,013,595 acres comprising Glacier National Park in northwest Montana are of worldwide significance. Established in 1910, Glacier was set aside "as a public park or pleasure ground for the benefit of the people of the United States" (enabling legislation for Glacier National Park). The wide variations in climate, elevation, geology, and soils help define four geographic vegetation patterns. Glacier provides habitat for natural populations of indigenous carnivores and most of their prey species and nearly all species of terrestrial wildlife present when the park was established. The long and varied human history of the region

also is reflected in the park's cultural resources, which include historic buildings and structures, archaeological sites, and ethnographic resources.

Glacier National Park and Waterton Lakes National Park of Canada are designated the world's first International Peace Park. Waterton-Glacier International Peace Park also has been designated an International Biosphere Reserve and a World Heritage Site. Ninety-five percent of Glacier National Park is proposed wilderness, and following NPS policy, is managed as designated wilderness.

C. Goals and Objectives Provided by the Land & Resource and General Management Plans

The General Management Plan (GMP) states: "Fires in Glacier National Park are managed to achieve a balance between suppression to protect life, property, and resources and fire use to achieve and maintain healthy ecosystems."

"Wildland and prescribed fires are a means to an end. They represent planning and implementation actions carried out to facilitate protection and resource management objectives described in Fire Management Plans."

These objectives are a direct link to decisions and management goals stated in the Resource Management Plan and the General Management Plan. The General Management Plan objectives are as follows:

- Preserve and protect natural and cultural resources unimpaired for future generations (1916 Organic Act).
- Provide opportunities to experience, understand, appreciate and enjoy Glacier National Park consistent with the preservation of resources in a state of nature (1910 legislation establishing Glacier National Park).
- Celebrate the ongoing peace, friendship and goodwill among nations, recognizing the need for cooperation in a world of shared resources (1932 International Peace Park legislation)

1. Objectives of Cultural and Natural Resource Management Plans and the Fire Management Plan

Within the framework of NPS fire management policies; the objectives of fire management programs are to:

- Protect human life and property from wildland fire; safety is the primary consideration of every management action.
- Restore fire to its natural disturbance role and use prescribed fire to maintain healthy and dynamic ecosystems that meet management objectives.

- Manage wildland fire by considering the entire range of alternatives including the possibility of suppression on one part of a wildland fire, and managing for resource benefits on another part of the same fire.
- Protect those agency-identified resources that are at risk from fire.
- Minimize adverse effects of fire suppression.
- Manage all aspects of the fire management program in a cost efficient and effective manner.

Implementation of this Fire Management Plan within Glacier National Park will support the Park GMP and Resource Management Plan (RMP) by managing fire as an ecological process that will help restore and maintain natural biotic systems.

III. WILDLAND FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

The goal of the fire management program is to safely manage wildland fires at minimum cost consistent with land and resource management objectives and fire management direction. Per the <u>Ten-Year Comprehensive Strategy</u>, collaboration, priority setting, and accountability are significant goals of this Fire Management Plan.

The general implementation procedures for the agency's wildland fire management programs will follow the core principles of the <u>Ten-Year Comprehensive Strategy</u>, including:

Collaboration: Glacier National Park will continue efforts to strengthen partnerships with local, state, and other federal cooperators and non-government partners adjacent to the lands administered and protected by the agencies.

Priority Setting: The Park will continue to place public and firefighter safety as the highest priority in all fire management decisions and actions. Direction provided by the National Fire Plan to prioritize hazardous fuel treatment projects on communities and municipal and other high priority watersheds will be followed within the programmatic and budgetary guidelines and capability of each agency. Restoring and maintaining the health and resistance of fire-prone ecosystems on a landscape scale is a long-term emphasis, also within the guidelines of programmatic, budget, and mission objectives of each agency.

Accountability: The Park will establish and consistently employ cost effective measures, standards, budgets, and reporting processes in the development and implementation of programmatic and project level Fire Management Plans and activities.

Also see section IV.B.4.b. below for a discussion of the management response for of wildfires.

The goals for which wildland fire management strategies are applied include:

- Achieve a program where firefighter and public safety is the highest priority in every fire management activity.
- Increase public information and education opportunities for understanding the role of wildland fire in shaping and maintaining healthy, diverse ecosystems, and increase the use of fire to restore fire-adaptive ecosystems and meet other resource objectives with science-based data and plans.
- Reduce hazardous fuels that compromise public safety and resource values by continuing to develop a diverse program and funding capability that considers all viable fuel treatment strategies and technologies.
- Integrate fire protection considerations in all aspects of land and resource management planning.
- Promote community assistance by encouraging local capacity to accomplish hazardous fuel reduction and ecosystem rehabilitation.
- Improve the effectiveness of reducing human-caused fire risk and preventing and suppressing wildfires.
- Build effective communications, working relations and partnerships with other federal, state, and local land and resource management agencies, local government public safety entities, state air quality regulators, local private land owners, and the interested public in order to inform, collaborate, and coordinate an effective and efficient fire management program.

B. Wildland Fire Management Goals

1. Firefighter and public safety will be the highest priority of every fire management activity.

<u>Objective</u>: Ensure that wildland fire and prescribed fire operations are managed to minimize risk to the public and firefighters.

<u>Strategy</u>: For personnel assigned responsibilities to manage wildland and prescribed fires, ensure that each individual meets the National Wildfire Coordinating Group standards listed in the Wildland and Prescribed Fire Qualification System Guide 310-1, including physical fitness requirements.

 Firefighting personnel from cooperating agencies will meet the qualification standards set by their agencies when used during initial attack on wildfires.

- All personnel involved in fire management operations will receive a
 pre-engagement briefing that describes known hazards and
 mitigating actions specific to each wildland fire or prescribed fire
 event. Briefings will address established firefighter safety practices,
 current and expected fire behavior, current and predicted fire
 weather, incident or project organization, and specific strategic and
 tactical objectives.
- For every fire management project, safety responsibilities are clearly described by agency guidelines. This includes, but is not limited to, adherence to the 10 Standard Fire Orders, the 18 Watch-Out Situations and LCES (Lookouts, Communications, Escape Routes and Safety Zones).
- Provide notification to park visitors, federal, state, and local government cooperators, and local residents of all planned and unplanned fire management activities that could affect them.
- The Superintendent may close all or portions of the park to the public when fire activity may pose a threat to human safety.

2. Provide an efficient fire management program in which cost containment is a specific objective.

<u>Objective</u>: All Fire Management Plans and actions will consider ways to contain costs while meeting land and resource objectives without compromise to firefighter and public safety or values to be protected on the units.

<u>Strategy</u>: The Superintendent and fire managers will identify and consider the most cost effective strategies and treatments in all fire management planning. If the least-cost alternative is not selected, a specific rationale will be provided in conjunction with documentation of the decision.

3. Manage wildfire and prescribed fires in compliance with federal, state, and local air quality regulations.

<u>Objective</u>: Ensure that air quality thresholds for National Ambient Air Quality Standards are not exceeded and that visibility is not exceeded or significantly impacted in adjacent airsheds.

Strategy:

- Incorporate air quality objectives in each prescribed fire plan.
- Develop and implement smoke impact mitigation measures for prescribed fires.

- Analyze potential impacts of smoke from all wildland fire events and consider alternatives that reduce smoke amount and duration, and/or employ mitigation actions to the extent possible.
- Coordinate air quality objectives and smoke production restrictions with smoke management unit as part of prescribed fire planning and implementation.
- Analyze alternative non-fire treatment methods prior to selecting a prescribed fire alternative.
- 4. Implement the initial response for all wildfires, regardless of ignition source, to protect the public, check fire spread onto private property, and protect the natural and cultural resources on federal lands.

Objective: The selected initial response is successful 95% of the time.

Strategy:

- Attempt to prevent fire spread onto adjacent public and private lands by containing all fires within park and forest boundaries.
- Assess values to be protected and take appropriate actions for each incident, to prevent fire damage to facilities and historic and cultural resources.
- Maintain qualified fire management organizations capable of handling the normal-year suppression workload.
- Cooperate and communicate effectively with adjacent agencies. Keep interagency agreements current.
- Suppress fires or portions of fires that threaten to damage public property.
- Ensure that staff is trained in wildland fire operations and that managers who are responsible for fire operations understand fire policy.
- Ensure that necessary equipment and fire personnel remain in a state of readiness during the fire season.
- Implement an effective fire prevention program.
- Manage wildland fires so that all resources (natural, cultural, and improvements) are protected from damage by suppression actions and wildfires.

<u>Objective</u>: Manage suppression actions so that rehabilitation costs total less than 10% of suppression costs.

Strategy:

• Ensure that all fire management operations employ minimum impact management tactics.

- Use management strategies and tactics that avoid unnecessary resource damage.
- Ensure that fire operations personnel are briefed on resource values and potential damage from fire and suppression actions.
- Assign a resource advisor on any fire with potential to adversely impact sensitive resources, or that will require intensive use of sitedisturbing suppression tactics, or to which a Type 1 or Type 2 incident management team is assigned.
- 6. Facilitate reciprocal fire management activities through cooperative agreements and working relationships with other federal, state, and local fire management entities.

<u>Objective</u>: Review agreements and modify annual operating plans with cooperating agencies annually.

Strategy:

- Coordinate with international, tribal, federal, state and county governments (see Appendices 5.F.1, 5.G.1 and 5.G.2).
- Where appropriate, share resources in wildland fire management and prescribed fire implementation to facilitate cooperation, develop skills and enhance qualifications.
- 7. Use of Wildland Fire (prescribed fire and wildfire managed for resource benefit) as program options to meet resource management objectives, maintain and restore natural resources and natural ecological conditions where possible.

<u>Objective</u>: Restore fire to its natural role to the extent possible and enable natural processes to function essentially unimpaired by human influence.

Strategy:

- Implement a fire use program to allow fire to assume its natural role.
- Coordinate multiple inventory systems and build a resource database to help better understand natural vegetative composition.
- Continue conducting fire history research to further understanding of natural fire regimes.
- Quantify fire behavior and effects through research, monitoring and evaluation in order to refine prescriptions.
- Use prescribed fire to meet management goals when and where wildfire is unacceptable due to any management concern.
- Maintain a qualified staff to implement prescribed fire programs.
- Solicit public involvement in the park's fire programs and maintain an
 effective public information program specific to the needs and benefits

- of prescribed fire and wildfire in relation to resource management goals and objectives.
- Refine prescriptions for prescribed fire and wildfire managed for resource objectives to ensure safety of the public and fire managers and capability of restoring and maintaining respective ecosystems.
- Integrate current science that establishes the natural role of fire as well as the risks and economics in development of project prescriptions.

8. Reduce wildland fire hazards around developed areas and in areas adjacent to cultural sites.

<u>Objective</u>: Use strategies to reduce risk of fire destroying or damaging any public or private structure or any cultural or historic resources.

Strategy:

- Apply mechanical hazard fuel reduction, prescribed fire, or a combination of the two around structures and other improvements to reduce fire intensity and severity to defensible levels.
- Use available techniques, including mechanical hazard fuel reduction and prescribed fire, to reduce hazardous fuel concentrations in wildland/urban interface and around cultural and historic sites.

9. Reduce the incidence and extent of wildfires.

<u>Objective</u>: Prevent unplanned human-caused ignitions through fire prevention and education programs for park and forest visitors, neighbors, and staffs.

Strategy:

- Inform and educate the public through school visits, interpretive programs, public meetings, etc. Include such topics as: prevention, defensible space, and ecosystem maintenance.
- Develop or use an existing website to display relevant fire materials, latest research, and program updates.

C. Wildland Fire and Fuels Management Options

Resource management and protection objectives determine fire management options that support the restoration and maintenance of ecosystems within the park. This section describes operational guidelines for the park to integrate a complete program that applies strategies that accomplish mutually identified resource management and protection objectives.

1. Wildland Fire

A "wildland fire" is any non-structure fire, other than prescribed fire, that occurs in the wildland.

a. Management of Wildfire for Protection Objectives

All unwanted wildland fires will be suppressed using a management response that best allows for firefighter/public safety and protections of resources.

Suppression includes all actions taken to extinguish or manage the growth of fires. Suppression fires will be targeted with prompt, safe and cost effective actions utilizing a strategy indicated by the specific circumstances and management objectives identified for the area burning and likely to burn.

The cause of ignition will be determined for every fire and reported on the individual fire report. Wildland Fire Decision Support System (WFDSS) will be prepared for all wildfires. Suppression forces will choose cost effective methods and equipment commensurate with land management objectives. Forces will attempt to halt fire spread without causing adverse environmental impacts or adverse effects to cultural resources.

The "closest forces" concept will guide dispatching resources to wildland fires. The Duty Officer will request resources through the Kalispell Interagency Dispatch Center if sufficient local resources are not available. Dispatch responses guided by the National Fire Danger Rating System preparedness levels and staffing classes are specified in preparedness information and should be used as guidelines for the type and quantity of forces to be dispatched.

Where a fire is solely managed for protection objectives, the following strategies may be authorized:

- <u>control</u> to complete a control line around a fire, any spot fires
 there from, and any interior islands to be protected from damage
 that would be caused by the fire; to burn out any unburned area
 adjacent to the fire-side of the control line, and to cool down all hot
 spots that are immediate threats to the control line until the line can
 be reasonably expected to hold under foreseeable conditions.
- <u>contain</u> to surround a fire and any spot fires with a control line that can reasonably be expected to mitigate the fire's spread under prevailing and predicted conditions.

 <u>confine</u> - to limit fire spread within a predetermined area principally by use of natural or pre-constructed barriers and/or environmental conditions. Suppression action may be minimal and limited to surveillance under appropriate conditions.

b. Management of Wildfires for Resource Benefits

One goal of the park's wildland fire program is to maintain fire as an integral process in managing ecosystems. When the selected strategy and objectives for managing a naturally ignited fire or portions of a fire, is for resource benefit objectives, the fire will be managed in accordance with established policy and prescription parameters and are subject to periodic validation by the agency administrator. The safety of the public and fire management personnel, as well as the protection of developments and private property will be of primary concern in determining the management strategy of wildfires.

Wildfires will result in a wide range of fire intensities and severities. Variations of fire behavior will produce a diversity of habitats, including species composition and age classes across the landscape.

2. Fuels Management

a. Prescribed Fire

Prescribed fire will be used to return fire to the ecosystem and to maintain and/or restore plant communities, recycle nutrients, reduce or remove exotic plants, reduce hazardous fuel accumulations, reduce future fire suppression costs, and for other resource management objectives.

For purposes of this Fire Management Plan and as defined by the Federal Wildland Fire Policy, prescribed fire is any fire ignited by management actions to meet specific objectives. Glacier National Park must address approved resource and fire management objectives stated in this Fire Management Plan, and an approved written prescribed fire plan must exist prior to implementation of a prescribed fire project. Prescribed fire will be used to meet management goals when and where wildland fire is unacceptable or is not permitted by approved plans.

Glacier National Park has successfully used prescribed fire as an agent in maintaining ecosystems; and to protect, enhance, and maintain desired vegetative conditions. Other specific objectives are defined in prescribed fire plans associated with resource management programs and activities. Prescribed fire is used to contribute to cost-efficient fire protection and

sustainability of ecosystem values. For the foreseeable future, the prescribed fire program under this Fire Management Plan will place emphasis on restoring fire as an ecological process and reducing hazard fuels concentrations.

b. Non-Fire Applications

The goal of mechanical hazard fuels reduction is the modification of wildland fuels in a cost-efficient manner to support land, resource and fire management objectives. Near developments or cultural, natural, and other resources that may be damaged or destroyed in a high intensity fire, the mechanical reduction of hazard fuels may be required. In many instances mechanical fuels reduction projects will occur in areas where fuel accumulations are too high to use prescribed fire safely and effectively. Mechanical reduction may be followed by the application of prescribed fire in these situations.

Hazard fuels reduction objectives can be met through a comprehensively planned series of projects where a combination of non-fire and prescribed fire treatments is employed.

The foremost outcome of hazard fuels reduction activities is enhancement of firefighter and public safety. In addition, real property and natural and cultural resources are afforded better protection from future wildland fires. Hazardous fuels reduction can lower potential suppression costs by allowing more options for suppressing future fires, including those requiring less aggressive strategies and tactics. Fuels reduction activities also provide managers with more opportunities to safely and effectively use prescribed fire and wildland fire events for restoration and maintenance of fire-adapted ecosystems.

D. Fire Management Units and Strategies

A "Fire Management Unit" (FMU) is any area defined by common management objectives, land features, access, values to be protected, political boundaries, fuel types, major fire regimes, or special management areas designated by agency authority or congressional action, i.e. wilderness.

Each FMU has fire management strategies assigned and includes conditions that will accomplish stated objectives for that unit. Both the park and the Flathead NF have defined the same categorical fire management units delineated according to agency and unit management objectives.

The fire management units described below are defined by agency direction established in the Glacier National Park General Management Plan and

principally correspond to land and resource management objectives, values to be protected, and fire regimes.

Determination of the management strategy for each fire will consider the consequences to public and firefighter safety first, then land and resource management objectives, values to be protected, cost effectiveness, fire behavior conditions and potential effects, the probability of success and consequences of failure, availability of resources to successfully implement the strategy, and any other relevant factors. Management strategy decisions will be documented through the Wildland Fire Decision Support System (WFDSS) process.

Detailed descriptions of the characteristics, fire history and fire regimes, management goals, objectives and constraints, including fire management objectives showing the location of the fire management units is located in Appendix 3.D.2. Glacier National Park maintains extensive Geographic Information System (GIS) databases of cultural and natural resource information.

A general description of the park and forest fire management units and the fire management strategies that may be considered for each unit follows:

1. Fire Management Unit A — Wilderness / Resource Benefits

This FMU consists of land areas being managed for wilderness values, but not formally designated wilderness. Maintaining ecosystem processes and components, including wilderness characteristics, is the principal land and resource management objective for this unit. Wildland fire is recognized as the primary process to meet that objective.

Most fires occurring in this unit are caused by lightning and remain small during all but the most extreme fire seasons, or the peak period within a season and can be suppressed in the initial attack stage. However, consistent with the predominant vegetation types and natural fire regimes, occasional fires can get very large. Due to the remoteness of most lands in this unit, fire starts here have a low probability of impacting human values; and therefore are well suited to be managed to restore and maintain the natural role of fire, reduce unnaturally high fuel loads, and enhance long-term resource conditions. Values to be protected are generally low within the unit, but fires can have the potential to impact adjacent units with higher values.

Managing wildfire for resource objectives is the primary strategy considered in this FMU. Although other strategies may also be appropriate under certain conditions, each natural ignition in this zone will be considered to be managed for resource objectives and WFDSS will be completed. Wildfires managed for protections objects within this unit will usually be managed under a suppression strategy that emphasizes the minimum practical impact

from human actions and potential fire size will usually not be a determinant in selecting a suppression alternative.

On all lands within this unit, prescribed fire is authorized with project planning, public involvement and appropriate environmental analysis.

2. Fire Management Unit B — Mixed Values

This FMU represents a variety of resource values and uses, and includes remote locations as well as wildland/urban interface.

Lands in this unit are generally those that historically have seen the most intensive access development and land and resource management activity.

Lightning causes most unplanned ignitions in this unit, however, humancaused fires are not uncommon, particularly close to access routes and developed areas.

Approved management actions include prescribed fire and suppression of wildfires. Management of the latter strategy may employ the full spectrum of suppression responses from surveillance to aggressive tactical actions, depending on land management objectives and other criteria specific to the location and circumstance of the ignition.

Managing wildfire for resource objectives is an option for lands included in this FMU, but the prescriptions are restrictive due to the values to be protected within the unit and on adjacent areas. Confine/contain strategies may be used for firefighter safety, cost efficiency and to minimize resource damage from suppression activities.

3. Fire Management Unit C — Developed Areas

This FMU consists of areas of wildland/urban interface, most often occurring along park and forest boundaries with private lands, but include developed areas of both federal-owned and private lands within the boundaries.

Human caused fires occurring in this unit are of particular significance since they are often in close proximity to structures and other developments. Fire starts within this unit are typically managed with a suppression response focused on minimizing fire effects or fire suppression impacts to developed areas or adjacent private lands. Glacier National Park management strategies also include mechanical fuel treatment, and use of prescribed fire. In some situations, confine/contain strategies may be appropriate responses and can be considered where they can be safely and effectively accomplished.

Fire management activities within this unit will often involve or be of significant interest to other cooperators, including state and local government agencies, as well as private property owners.

IV. WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS.

A. General Implementation Procedures

The WFDSS process will be initiated for all wildland fires within Glacier National Park. The Fire Management Officer, Duty Officer, or qualified designee will initiate the WFDSS process to assist in selecting the management strategy. Operational management decisions are described in the completed WFDSS decision.

See section VI.C of this plan for a more thorough discussion of implementation procedures.

B. Wildland Fire Suppression

Initial action will be taken on all wildfires to protect life, minimize suppression cost and damage to resources, and to prevent the escape of wildland fire. The full range of suppression strategies is available on most areas of the park, but areas are identified on both units where aggressive suppression is employed to reduce risk to human life or unacceptable damage to resources. The initial responses for different areas of the units are derived from the resource, and general management plans.

The range of available fire suppression strategies for Glacier National Park can be found in Appendix 4.B.2

1. Range of Potential Fire Behavior

Wide variations in fire behavior in Glacier National Park range from smoldering to intense to fast moving, depending on such factors as fuels, weather and topography. Average fires can be expected to have a rate of spread of 1 to 6 chains per hour (one chain equals 66 feet). However, under different conditions, these same fuels can support a sustained crown fire that can move through the canopy at speeds of up to 5 miles per hour. The Continental Divide can modify fire behavior serving as either a natural barrier or serving to influence local weather and wind patterns.

When live fuel moisture drops below 100 percent, fires can be expected to exhibit extreme behavior and continue to burn actively through the night, particularly on slopes above inversions. Indirect attack tactics are indicted when fires largely involve aerial fuels in conifers with moderate or long range spotting, or otherwise burning with extreme fire behavior. This situation is not uncommon in the heavily timbered conifer fuels of the forest and park when the aggravating influences of either or all of slope, dry fuels, and wind are added to the fire behavior equation. When fires burn under those conditions, dense smoke and air turbulence can severely reduce visibility and create problems for, or curtail air operations. Such conditions also make it difficult to adequately observe a fire for size-up and reduce the effectiveness of lookouts assigned for firefighter safety.

Fire behavior can be expected to change as quickly as the interaction between the fuels, topography and weather changes. Concurrently, anticipating changes in fire behavior directly effects the selection of particular strategies and tactics to safely manage a wildland fire.

2. Preparedness Actions

Fire preparedness includes the planning and implementation of program activities, budgets, resources, and personnel necessary to respond to the average initial attack fire management workload on the units of each agency. Those workloads are determined from historical records and analysis used in the park fire management planning processes. Currently the park's budget is based on earlier FIREPRO analysis, but FIREPRO will be replaced by the Fire Program Analysis (FPA) and Planning Data Systems (PDS) programs..

Unusually severe initial and extended attack potential or activity is addressed in real time by severity authorizations made upon requests from the agencies. Approval of severity funds and augmentation of the agencies capabilities is based on predictive services forecasts and actual activity levels that exceed planned program levels.

The Fire Management Officer, is responsible for developing annual preparedness plans that are approved by the Superintendent. Preparedness reviews for will be conducted annually in late June or early July.

a. Fire Prevention

The park has developed a wildland fire prevention plan with specific education and engineering activities designed to increase public awareness of general and seasonal fire potential and precautions in the use of fire for recreational, personal, and commercial purposes. Fire prevention activities occur at the local level through unit prevention programs and are

coordinated on an interagency basis among the partners of the NW Montana Zone.

Prevention plan for Glacier National Park can be found in Appendix 4.B.4.

1) Restrictions and Closures

During periods of very high and extreme fire danger, the agencies, in collaboration with the other NW Montana Zone cooperators, may consider restrictions or closures to public access and use of national forest and national park lands. Restrictions and closures are fire prevention engineering tools designed to reduce human-caused fire risk, and to provide increased public safety by controlling occupancy of public lands that may be threatened by wildland fire.

Glacier National Park are signatory agencies of the <u>NW Montana</u> <u>Restrictions and Closures Plan</u> (see Appendix 4.B.5). The plan provides guidance to agency administrators and fire prevention planners for considering the need for, and implementing fire restrictions and closures.

b. Training and Qualifications

The purpose of fire training is to promote safe and effective individual performance in accomplishing fire management goals and objectives. Wildland and prescribed fire qualifications based on training and experience are established by the NWCG guidelines and agency policies. NWCG publication PMS 310-1 Wildland and Prescribed Fire Qualification System Guide sets baseline interagency standards for training and qualifications requirements.

c. Fire Equipment and Supplies

The park maintains caches of fire equipment and supplies essential for the average initial attack and extended attack workload and the organizations identified by the units' fire preparedness planning processes. Equipment and supplies will be available in working condition and accounted for annually as part of the unit's preparedness review prior to the beginning of the declared fire season. The Fire Management Officer is responsible for providing standards for approved equipment and supplies and stocking levels to sub-units where caches are established.

1) Accountable Property and Fire Loss / Use Rate

Items with a purchase price greater than \$5,000 and other items of lesser value, but determined to be "sensitive", are considered

accountable, and will be individually inventoried and assigned to a responsible unit or individual. When accountable property is assigned to a unit for general availability, the Fire Management Officer is responsible for its disposition.

The Superintendent is responsible for enforcing established fire loss use rates on incidents, both by providing direction for accountability to incident commanders and by monitoring local inventories of fire equipment and supplies assigned directly to the agencies for fire management activities.

d. Fire Weather and Fire Danger

1) Fire Weather

Fire weather stations are maintained by each agency to monitor and report conditions across the park. These remote automated weather stations (RAWS) provide data for daily fire danger indices (during the fire season) for the National Fire Danger Rating System (NFDRS) as well as information to catalog long-term weather trends. A list of fire weather stations and indices values is located in Appendix 4.B.7.

2) Fire Danger

The energy release component (ERC) is a standard descriptor of seasonal and daily fire danger. The ERC with Fuel Model G indicates the contribution that live and dead fuels make to potential fire intensity. The relative values of ERC are a good indicator of overall fire danger and are easily communicated to fire personnel and can be compared against known situations and personal experiences. Firefighters use the ERC to suggest the likelihood of fire behavior in known fuel types and weather conditions. Fire danger pocket cards have been prepared for the representative fuel types and fire weather history for the forest and park. The pocket cards are provided to all personnel, including transient firefighters temporarily assigned to wildland fire suppression activities on the units. Fire danger pocket cards for the Flathead National Forest and Glacier National Park can be located in Appendix 4.B.8.

e. Preparedness Levels/Step-up Plan

The park has established guidelines for determining preparedness levels and specific actions to be taken on their units to address the wildland fire management workload that can be expected at each level. The park will take into consideration other cooperators staffing and anticipated needs in establishing their respective preparedness levels.

See Appendix 4.B.10 for preparedness actions to be taken by the park.

f. Draw Down

Glacier National Park has prepared fire management organization and procedural draw down plans to address increased wildland fire potential or activity. The purpose of the plans is to ensure an appropriate management and initial attack response capability is maintained for actual and forecasted conditions. Draw down will be coordinated among the park and the other cooperating agencies and government entities in the NW Montana Zone at preparedness levels 4 and 5.

See Appendix 4.B.12 for park draw down plans.

3. Pre-Attack

a. Strategic Planning and Actions

Information to support wildland fire management pre-attack processes and decision-making is constantly being developed with improved GIS capabilities. The park unit develops and maintains data including resource values, infrastructure, transportation systems, ownership, fire history, fuel models and fire regimes, water sources, aviation hazards, among others, to enhance alternatives development, analytical capability, and current decision-support.

During the fire season, regional and local predictive services support is available to the park fire managers to assist in forecasting fire danger and fire behavior, risk assessment, and implementation of staffing and specific actions commensurate to current and forecasted conditions.

b. Fire Detection

The park employ a three-pronged system of fire detection, including aerial observation, fixed detection (lookouts), and mobile detection (roving ground patrols). Aerial detection and mobile detection are provided with increased frequency on all or parts of the park as fire danger increases seasonally, or intermittently following lightning storms. The BLM lightning detection system is used by the park and Kalispell Interagency Dispatch Center to monitor storm tracks and focus detection on areas with a high probability of ignition.

Fire detection lookouts that have views of the park are maintained and staffed on the forest at:

- Cyclone Peak, Glacier View RD (North Fork Flathead River)
- Thoma, Glacier View RD (North Fork Flathead River)

Fire detection lookouts are maintained and staffed in the park at:

- Numa Ridge (North Fork Flathead River)
- Loneman Mtn (Middle Fork Flathead River)
- Huckleberry Mtn. (North Fork Flathead River)
- Scalplock Mtn. (Middle Fork Flathead River)
- Swiftcurrent Mtn. (Continental Divide)

c. Dispatching and Resource Ordering

Resources will be mobilized based on completed resource orders, form ICS-259, placed by KIC (Kalispell Interagency Dispatch Center) to other coordination centers, and released from an incident on the same order. A standard resource categorization and numbering system is used. That system includes the following resource categories; aircraft, overhead, crews, equipment, supplies, and initial attack forces. Agency management fiscal codes must be included on each resource order.

4. Initial Attack

Initial attack includes the first actions taken to suppress a wildfire. Those actions are usually initiated by the Fire Management Officer or Duty Officer, or may be initiated by KIC. The initial attack actions, as the selected response, are guided by the protection objectives established for the area and described in the and Resource or General Management Plan. Each initial attack response should represent the most reasonable and probable course of action to provide for firefighter and public safety and minimize fire suppression costs and resource damages commensurate with fire potential, values at risk, and environmental and social impacts. Detailed information can be found in the KIC Operating Plan, revised annually.

a. Initial Attack Priorities

The Flathead National Forest (FNF) and park officials will jointly determine priorities and resource allocation when a complex fire situation exists in the North or Middle Fork drainages and firefighting resources are limited. This allocation will not be based upon agency boundaries but will instead be made on the basis of potential for damage to the values and resources to be protected.

Priorities for assigning critical or limited resources to initial attack incidents will be based on the following criteria:

- public and firefighter safety
- protection of improvements and private property
- protection of cultural and natural resources
- fire behavior potential as determined by fuels, weather and topography
- probability of success and consequences of failure
- suppression resource response times

b. Protection/ Suppression Management Response

Where suppression of the wildfire is chosen as the initial response, the level of response will be determined by evaluation of public and firefighter safety, values to be protected and cost effectiveness, fire behavior, potential damages from suppression efforts, the probability of success and consequences of failure, and the availability of fire management resources.

Management responses may vary from fire to fire and sometimes along the perimeter of the same fire. Response options range from surveillance and monitoring without on-the-ground disturbance to aggressive suppression actions on all perimeters of the fire.

c. Confinement as an Initial Attack Strategy

Confinement may be selected as a suppression strategy The analysis and decisions made through the WFDSS analysis may show that confinement is the most appropriate strategy when the fire is expected to exceed initial attack capability or planned management capability

Safety of the public and firefighters should be the primary consideration when selecting the option of confinement. Additional considerations for selecting the most appropriate strategy include values to be protected, probability of success, and consequences of failure, cost effectiveness, land management objectives, and public and adjacent landowner concerns. The preferred strategy should be implemented as quickly, safely and efficiently as possible.

d. Mobilization and Fire Response Times

Mobilization and operational procedures have been established to guide approved suppression responses to wildfires. Response times to fires vary depending on preparedness level, availability of personnel and resources, other fire management activity in the area, and current local conditions.

e. Restrictions and Special Concerns

1) Motorized or Mechanized Equipment Use

Fire suppression strategies and tactics that indicate the use of motorized or mechanized equipment must be in compliance with resource objectives and constraints that may be applicable. Those objectives and any such constraints are described in the appropriate resource management plans for the units.

2) Authority for Exemptions

For all Fire Management Units, the Superintendent must authorize the use of any off-road mechanized equipment used in the suppression or management of wildland fires.

3) Resource Advisors

A Resource Advisor will be assigned to all fires where there is concern that fire management activities may risk unmitigated damage to resources, and to any fire for which a Type 1 or 2 Incident Management Team is assigned.

f. Cooperative Relations and Local Issues during Initial Attack

More than one agency may have fire protection responsibility for an area, particularly in the wildland-urban interface. Fires may involve multiple jurisdictions, or land ownerships or burn on land where more than one government entity, federal, state, or local has a legally mandated responsibility and authority.

Fire protection responsibility usually rests with the agency that has jurisdiction for an area, but that responsibility may be conveyed to another agency through a written agreement.

In situations where multiple jurisdictions or agencies each have authority and responsibility it is essential to include those agencies in developing the fire protection and life safety objectives for an incident.

1) Unified Command

Unified command provides each agency or local government entity that has responsibility to manage an incident with a way to participate in the joint establishment of incident objectives, develop the strategy and tactics, set priorities, and assign resources.

Unified command is accomplished without any agency or entity giving up their authority, responsibility or accountability. In unified command, qualified personnel will be integrated into the incident management organization as appropriate and desired by each agency and entity.

The resources of all agencies should be included in a unified incident action plan and be assigned clear roles and will share common communications. Independent operation by multiple agencies and resources on the same fire ground is unsafe and may be reason to delay operations until coordination and cooperation are established.

National Park Service policy states; ". . . All wildland fires will be effectively managed, considering resource values to be protected and firefighter and public safety, using the full range of strategic and tactical operations..."

Reference the Blackfeet Tribe, Lewis and Clark National Forest and Glacier National Park <u>Annual Operating Plan</u> and other documents in Appendix 5.G.2 for information about other park agreements.

g. Incident Commander

Each initial attack incident will have an incident commander (ICT5 or ICT4) assigned by the Fire Management Officer, Duty Officer or appropriate supervisor. The name of the IC will be made known to all personnel engaged in management of the incident, including those in fire suppression, coordination, and support roles.

The Fire Management Officer or Duty Officer may elect to assign an ICT3 to initial attack incidents that either involve a complex variety of resources (particularly when multiple air and ground systems respond), when fire potential or demonstrated fire behavior, or complex fire suppression strategy warrants a more experienced incident commander.

The initial attack incident commander will provide a thorough briefing to all resources assigned to the incident. The components of the initial briefing are found in the <u>Incident Response Pocket Guide</u>, NFES #1077. The IC is also responsible for completing and submitting documentation in the <u>KIC/R1</u> <u>Incident Organizer</u>.

5. Extended Attack and Large Fire Suppression

An extended attack incident may occur when actions to accomplish the initial attack objectives are not successful in the first burning or operational period, or when the organization of personnel and resources available to implement the initial attack objectives is inadequate. The extended attack period may include a transition from initial attack through escaped fire to large fire situation.

All agencies with jurisdictional or protection responsibilities or resources committed to an extended attack incident should be involved in determining a strategy, setting priorities, assigning resources and objectives to suppress the fire as safely and efficiently as possible.

Glacier National Park participates with the Flathead NF and Montana DNRC Northwestern Land Office in the NW Montana Type 3 Incident Organization Plan (see Appendix 4.B.14) that describes roles and responsibilities and lists current personnel qualified to fill extended attack (Type 3) incident management positions.

a. Extended Attack Organization

Glacier National Park recognizes the need to manage wildfires in the safest and most efficient manner possible. Together with the Flathead NF and Montana DNRC Northwestern Land Office, the agencies have joined to form the Northwest Montana Type 3 incident organization to manage extended attack fires and other incidents requiring this level of management. The Type 3 incident organization can also be used to transition back from a Type 1 or Type 2 incident.

The Type 3 Plan sets forth procedures to assemble an incident management organization and provide operating guidelines and procedures for agency administrators, fire managers, and dispatchers to mobilize personnel from an interagency resource pool to a Type 3 incident.

The minimum structure for a predesignated Type 3 incident management team will adhere to standards found in the <u>Interagency Standards for Fire and Aviation Operations (NFES 2724</u>: January 2007).

See the <u>Northwest Montana Type 3 Incident Organization Plan</u> for a complete discussion of the purpose, procedures, responsibilities, and current roster of agency personnel to form and operate a Type 3 incident management organization.

b. Selecting a New Strategy through a Wildland Fire Decision Support Decision System(WFDSS)

The Wildland Fire Decision Support System process will be used to assist in determining and documenting the wildfire response. WFDSS will be used to document the consideration of alternatives and the suppression strategy decision for further management of an ignition that has, or is expected to exceed, the initial suppression action guided by direction in the land management plan and this Fire Management Plan. The WFDSS will be prepared by the agency with protection responsibility, using fire management and resource staffs to conduct the analysis. The Superintendent will select the preferred alternative and direct its implementation.

The Superintendent will re-evaluate the WFDSS on a schedule determine through the WFDSS process. If assumptions or predictions made in the WFDSS change during the course of implementation compromising the success of or invalidating incident management direction, the WFDSS must be amended or revised and a new decision made and documented by the Superintendent. WFDSS will be revised when conditions change or assumptions critical to the success of the existing decision are proved to be invalid.

c. Fire Complexity and Incident Management Transition

A complexity analysis will be completed in conjunction with the WFDSS to guide the Superintendent in determining what type incident management organization to assign to a wildland fire suppression event.

d. Delegation of Authority

When an incident management team is ordered, the Superintendent must provide a written Delegation of Authority and a briefing package to the incoming incident commander. An example of a Delegation of Authority and Agency Administrator briefing is located in Appendix 4.B.16.

e. Large Fire Management

If a large fire suppression incident (Type 1 or 2) occurs at Glacier National Park, cooperative management with other jurisdictions may be required. The following information will be used in determining management actions and decisions:

- threats to life, property and resources
- availability of suppression forces
- current and expected fire behavior

 land management objectives, values to be protected, and the selected alternative from the WFDSS decision

The protection agency will assume the lead in coordinating with all other involved agencies, KIC, and arriving resources. Planning and preparation for suppression forces will be maintained at an appropriate level to manage initial attack at a level that may be expected in an average fire year. Management of incidents beyond the average fire year level will require assistance from adjacent cooperating agencies, or regional and national agency fire organizations through pre-positioning of resources and/or severity authorization and plan implementation.

Additional resource requests such as firefighting personnel, engines and aircraft, will be ordered by either the incident commander or the duty officer and will be placed through KIC.

6. Minimum Impact Suppression Tactics (MIST)

All fire management activities will be conducted in such a way as to cause the least impact to the resources. The use of MIST will be stressed to all fire management forces. Methods and equipment used will be commensurate with the current predicted fire behavior, values to be protected, and land management objectives. The strategy selected will be that which will safeguard human lives and accomplish objectives in a cost effective manner while resulting in the least alteration of the landscape and disturbance of natural and cultural resources.

For wildfires for which a suppression objective is applied, the term "minimum impact suppression tactics" will be used. Minimum impact suppression tactics will be utilized to halt the spread of fire in such a way as to protect natural and cultural values, and minimize the lasting impacts of fire suppression activities (Mohr 1988, NPS 1988). Minimum impact suppression tactics does not imply or infer a relaxation of safe firefighting practices. Fire lines will be located to minimize the need for felling and bucking trees. Wet lines, foam, and the use of natural firebreaks all contribute toward minimizing suppression impacts on resources.

Fire camps and other incident facilities, when practical, will be located where minimal impact will occur to resources. An agency resource advisor must approve the location of all major incident facilities when placed on federal land.

Further guidelines for the minimum impact suppression program can be found in "A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment – 10-Year comprehensive Strategy –

Implementation Plan (May 2002)". This document was accepted by the National Wildfire Coordinating Group on June 26, 2003 and provides a framework that the park will utilize when applying MIST. (see Appendix 4.B.18)

7. Emergency Rehabilitation and Restoration

Impacts to land and resources from fire management activities and fire effects often require some form of rehabilitation or restoration.

Interagency guidelines to be followed include:

- Minimum impact suppression tactics will guide actions to mitigate actual or potential damage from wildland fire suppression activities.
- Mitigation of suppression damage is specified in incident action plans.
- Burned area rehabilitation plans will be prepared as necessary, following respective agency guidelines.

Short and long term impact mitigation measures are outlined in Reference Manual RM-18 (NPS), Interagency Burned Area Emergency Response (BAER) Handbook, and Director's Order #18.

8. Fire Records and Reports

The Fire Management Officer is responsible for all fire management records and reports, although this responsibility may be delegated to others on the fire management staff. Archived records and reports are to be held as permanent historic resource management records. Refer to the table below for a description of records and reports specific to each agency.

Table 1 — Records and Reports

REPORT	RESPONSIBLE OFFICIAL	DISTRIBUTION	FREQUENCY
DI-1202 Fire Report (DI 1202s are entering into WFMI and include narrative, daily WX forecasts, growth maps, costs &	NPS Superintendent	Copy1202/WFMIo nly) to archives (WFMI) within 10 work-days	per incident
monitoring data; attach		Fire use package	

WFDSS as appropriate)		to files	
Interagency Incident Qualification Card	FMO/FPMA	affected personnel	annually
Situation Report (daily May 15 – September 30)	Interagency Dispatcher (KIC)	briefings bulletin boards internet, etc. unit FMO	daily during season
R1/FNF Incident Organizer	initial attack IC	submit to unit fire manager	per incident
fire weather/Indices (daily; see dates above)	Fire Ecologist/ Interagency Dispatcher (KIC)	field units	daily
WFDSS large fire closeout	agency administrator incident commander	agency-specific agency administrator	per incident per incident

C. Use of Wildland Fire

Naturally ignited wildland fires may be managed within Glacier National park to accomplish resource management objectives in predefined geographic areas defined by the Glacier National Park General Management Plan, and outlined in this Fire Management Plan.

Fire history research indicates that natural community mosaics throughout the mountain states resulted from periodic fires (Fischer and Clayton 1983, Gruell 1983). Without fire, vegetation communities decline and biodiversity diminishes. Some species appear only during the first few years following fire and certain plants require the heat of fire for germination. Wildland Fire perpetuates the natural ecosystem and enhances biological diversity.

The 2009 Guidance for Implementation of Federal Wildland Fire Management Policy_provides direction, guidance, and assistance in interpreting the policy for the various federal wildland fire agencies. The guide provides specific direction for implementation of federal policies.

1. Objectives of use of wildland fire and Relationship to Land and Resource Management Direction

The objectives of the use of wildland fire with resource benefit objectives are:

- The safety of fire management personnel and the public is the first priority in every fire management activity.
- Allow fire to play its role as an essential ecological process and natural agent of change.
- Protect all structures, cultural sites, campgrounds, bridges and other improvements that could be damaged.
- Allow for reasonable visitor use of areas that may be immediately impacted by fire.
- 2. Parameters for the use of wildland fire will use the Wildland Fire Decision Support System process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation
- 3. Pre-Planned Actions for Implementation of the use of wildland fire Implementation procedures and actions of the use wildland fire in the park are specifically described in respective plans which support the Resource Management Plan and objectives to restore natural fire regimes in certain areas. See Appendices 3.D.2, 4.B.2, 4.C.1 and 4.C.3.

4. Use of Wildland Fire--Implementation Procedures

The Fire Management Officer or designee will use the WFDSS process to assist in making the decision on the action to be taken to manage a fire with resource benefit objectives. The recommendation for managing a fire for resource benefit will be approved/disapproved by the Superintendent or designee through the Decision Approval/Validation process in WFDSS.

Determination of the cause of ignition will be the first criteria in determining how the fire will be managed. If the fire is human caused or management response will be a protection/suppression. All FMUs within Glacier National Park have allowance for managing wildfires for resource benefit and protection objectives although prescription elements vary between FMUs. If all prescription elements are met, and it can be safely and cost effectively managed, then that ignition may be managed for resource benefit objectives.

Each wildland event requires an appropriate level Incident Commander to be assigned through the Fire Management Officer, Duty Officer or Superintendent. As complexity and size of a fire increase, management requirements and staffing also increase. Additional positions may be needed according to the

complexity of the event. An incident management team will be ordered if the complexity of a fire or complex of fires exceeds the ability of the park to manage them.

a. Wildland Fire Decision Support System (WFDSS)

Each wildland fire ignition will be assessed and a determination made whether to manage the fire for resource benefit or protection objectives. Objectives may change through the course of a fire or on different sections of the same fire. The WFDSS process decision serves as the documentation process for each wildfire.

As per NPS Agency direction, all wildland fires will be documented in WFDSS.

b. Periodic Assessment

All wildfires, whether managed for resource objectives or protection objectives or both, will be periodicall assessed and validated through the WFDSS process. Frequency of revalidation and assessment will be determined through the WFDSS process.

5. Potential Impacts of the use of wildland fire

Wildfire should perpetuate a variety of plant communities and vegetation successional stages. Fire-adapted vegetation will continue to be present. Populations of animal species will generally benefit over time from the diversity in communities and habitats resulting from fire.

Adverse impacts from fire use may include smoke production; loss of cultural, historical or archeological resources; decreased visitation resulting in decreased revenues for local businesses and commercial services; and, in the most extreme situations, loss of private property and improvements.

See Appendix 4.C.3 for a detailed analysis of potential impacts from wildfire in Glacier National Park and parameters for management decisions.

6. Organization Necessary to Implement the Multiple Objective Fire Program

Only personnel who meet National Wildfire Coordination Group and agency qualifications standards will implement planning and execution of the wildland fire program. Trainees will be included in the fire programs whenever possible, and when fully qualified individuals are available to supervise and monitor their performance.

At a minimum, every wildland fire will have a qualified Incident Commander assigned by the responsible Superintendent or designee. Interagency qualifications standards for wildland fire positions can be found in the Wildland and Prescribed Fire Qualification System Guide, PMS 310-1.

7. Public Information and Interpretation of the wildland fire use

The use of wildland fire offers a timely opportunity for public information, education and interpretation to assist in building support for resource management and the natural role of fire in Northern Rockies ecosystems. Actions to be implemented for informing the public and providing interpretation of fire include:

- 1) Pre-fire When planning, zoning, and decision criteria are put into effect, public information officers can respond with thematic programs, guided walks, publications, websites, or exhibits which incorporate this information along with the ecological and resource management rationale for natural fire prescriptions. Public information regarding managing fires for multiple objectives planning should be distributed through the park public information office.
- 2) <u>During the fire</u> The public information office will assume the lead role for coordinating information to be released to the media and the public. Because of the high and often emotional interest in fires, it is essential that key agency staff be fully integrated into information dissemination about on-going fires including, but not be limited to daily briefings, receipt of press releases, and regular communication by telephone and radio.

When fires are burning, appropriate information should be placed at trailheads, campgrounds, and visitor contact points, to supplement visitor information concerning the activity. Signs will be used to direct, inform, guide and caution visitors regarding existing fire conditions and public safety.

- 3) <u>Post-fire</u> Following the fire, agencies should consider planning for:
 - Interpretive devices such as wayside exhibits or self-guided nature trails.
 - Interpretive services such as guided walks through burn areas deemed safe.
 - Illustrated evening interpretive programs incorporating slides taken during and following the fire to illustrate ecological processes at work.
 - Formal exhibits or new publications as appropriate.

 Educational activities, including walks through old burns or viewing before-and-after photographs of burns to educate visitors to positive ecological effects of wildland fire use.

8. Wildfire Project Record

All fire records will be kept at the park fire management office and are the responsibility of the Fire Management Officer.

The final project record for a wildland fire use event will include:

- individual fire report DI-1202 (WFMI)
- daily narrative or log of the fire
- · record of daily validation
- WFDSS Documentation
- daily weather forecasts and spot weather forecasts
- cumulative fire map showing acreage increases and final perimeter
- · photo log of fire activity, fire effects, and management actions
- total cost summary
- monitoring data
- critique of fire projections on wildland fire implementation plan
- Burned Area Emergency Stabilization and Response reports
- impacts and effects of fire on cultural and natural resources
- additional written documentation relevant to the fire use.

a. Funding and Fiscal Tracking

The fiscal tracking identifier assigned for wildfire events will be used and an account will be established for each fire. All costs for management of a wildfire will be charged to the account assigned to that fire. This will include costs directly charged to the fire and those that are made in support of the fire. The fire management office will be responsible for gathering and tracking the charges for each wildland fire.

D. Prescribed Fire

Glacier National Park prescribed fire is authorized to accomplish land and resource management objectives, including maintaining healthy and dynamic ecosystems that meet those objectives. Prescribed fire can also be used to reduce fuel loading in areas where it has been deemed a hazard and a risk to values to be protected.

Fuels treatment is important to the management of vegetation communities and to achieve resource management goals. The need to conduct prescribed burns, manage exotic plants, and restore the functioning of disturbed vegetation communities is documented in numerous scientific reports and agency plans.

Prescribed fire and mechanical or manual fuel reduction are used to manipulate the fuel bed. Fire use (prescribed fire and wildfire managed for resource benefit objectives) are appropriate management actions to facilitate the restoration of native vegetation and natural ecosystems.

1. Prescribed Fire Planning and Documentation

Prescribed fire burn units may vary in size according to resource management objectives, but larger units may better assist in landscape scale restoration and are usually more cost effective to plan and implement. Prescribed fire boundaries should optimize the inclusion of natural features (variations in slope, aspect, or vegetation), natural fuel breaks, and roads and trails as perimeter controls. Proposed construction of perimeter fire control lines should be evaluated for impacts to natural and cultural resources, cost effectiveness, and defensibility.

a. Prescribed Fire Planning

All prescribed fire projects will have an approved plan containing measurable objectives and a prescription for implementation and will involve collaborative planning with each agencies respective interdisciplinary team.

Glacier National Park will prepare annual program of work plans identifying all planned prescribed fire activity. Approval of the annual prescribed fire program does not constitute final approval of individual burn plans.

Planned ignition will be conducted in designated burn units and within specified weather and fuel moisture parameters. Prescriptions for future prescribed fires may be adjusted as deemed necessary by monitoring results, and information gained from research burns and further refinement of the planned ignition program.

Research burns may be conducted with approval of the Superintendent, and must meet the same requirements as any other planned ignitions.

Each planned ignition will be monitored in order to maintain current information on fire size, location and rate of spread, intensity and potential threats, which might require suppression actions in the event of an escape.

A complexity analysis will be completed for each prescribed fire project and approved by the responsible Superintendent. The result of the analysis will determine the organization required for implementation of the prescribed fire plan.

b. Long Term Prescribed Fire Strategy

See Appendix 4.D.2 for the fuel treatment history of the park.

Glacier National Park will follow direction in the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (September 2006).

A five-year fuels treatment schedule has been developed and is located in Appendix 4.D.5, and will be reviewed annually. Planned ignitions will be used in specially designated units to restore safe fuel levels, maintain fire-dependent natural communities, and achieve other management objectives stated in Chapters II and III of this plan. Frequency and intensity of natural fires will be duplicated to the maximum extent possible, when safety and control can be assured.

National Historic Preservation Act Section 106 Compliance must be completed for each prescribed fire project prior to implementation until such time that a programmatic agreement is completed.

c. Organization Necessary to Implement the Prescribed Fire Program

Only personnel who meet National Wildfire Coordination Group and agency qualifications standards will implement planning and execution of the prescribed fire management program. Trainees will be included in the prescribed fire programs of both agencies whenever possible, and when fully qualified individuals are available to supervise and monitor their performance.

The prescribed fire burn boss will fill positions according to the organization plan, responsive to the complexity of the prescribed fire project, identified in the approved prescribed fire plan. Personnel will be assigned to the project in consultation with the Fire Management Officer. Cooperators that could assist in the event of an escaped fire are listed in Appendix 5.F.1.

Glacier National Park will follow guidelines for prescribed fire personnel qualifications established in the NWCG 310-1. The fire management officer will maintain a current roster of personnel with prescribed fire qualifications.

d. Prescribed Fire Prescriptions and Monitoring

Each prescribed fire plan will include a prescription to accomplish stated resource objectives. The prescription will include a range of acceptable fuel conditions, weather conditions, ignition techniques, area to be treated and desired fire effects.

All prescribed fires must include an adequate number of fire effects monitors to record and collect site weather, smoke dispersal, and fire behavior data. A prescribed fire monitoring report that includes weather observations, fire behavior observations, and immediate post fire effects will be completed for each burn.

For Glacier National Park, all fire monitoring will be documented according to the fire monitoring plan (Appendix 6.A.1).

1) Fire Behavior Monitoring

Monitoring fire behavior is critical to understand the relationship between site and weather conditions, management actions, and outcomes. Monitoring assists managers in recognizing and adjusting actions to changing conditions in real-time, and to include more precision in future planning.

Table 2. Fire Behavior Monitoring Criteria

Topographic Variables	Smoke Characteristics
percent slopeaspect of terrain	 visibility total smoke production mixing height transport and surface wind speeds and direction documented complaints from downwind areas
Fuel Models	Fire Weather Variables
 identify fuel(s) that are carrying the fire collection and measurement of fuel samples 	 air temperature relative humidity wind speed wind direction percent shading and cloud cover 10-hour time lag fuel moisture live fuel moisture drought index
Fire Characteristics	
 linear rate of spread perimeter and area growth flame length fire spread direction flame zone depth 	

2) Post Fire Effects Monitoring

Post fire effects monitoring will be done in concurrence with the Glacier National Park Fire Monitoring Plan (Appendix 6.A.1). Any deviations from the plan must be approved by the Regional Fire Ecologist, who is located in the Intermountain Regional Office in Denver, Colorado. All prescribed fires will be monitored to assist park management in ascertaining whether fire management objectives are being met and to refine burn prescriptions.

e. Evaluation of Prescribed Fire Projects

1) Prescribed Fire Critiques

A critique to gauge the success of each prescribed fire implementation will be conducted as soon as possible after the completion of the project. Post-burn critiques will follow the guidelines established in Chapter XI A. - After-Action Reviews.

f. Prescribed Fire Project Record

The burn boss will document significant prescribed fire actions.

1) Final Documentation

The prescribed fire burn boss is responsible for completion of the final planned ignition record no later than 10 days after the burn is declared out. The record will be filed in the fire management office and will include:

- individual fire report DI-1202
- spot weather forecast(s)
- pre-burn and post-burn monitoring reports
- actual implementation procedures and approved changes to the prescription
- cost summary
- final fire map
- fire critique/recommendations for future burns
- unit logs filled out by burn personnel
- photographs taken during implementation and post-fire monitoring and evaluation
- any other pertinent information regarding the burn

See Chapter 4.D.2 (below) for reporting requirements for escaped prescribed fires.

g. Historic fuel treatment map

See Appendix 4.D.2 for Glacier's fire history and fuel treatment map.

h. Prescribed Fire Plan Requirements

Prescribed fire plans must be prepared and approved in advance of the planned implementation of the burn. The plans will meet the standards of the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (September 2006).

1) Pre-ignition Briefing and Forecast Requirements

Pre-ignition briefing and forecasts must meet the following minimum criteria:

- All assigned personnel must be briefed prior to ignition to ensure safety considerations are clearly understood and prescribed burn objectives are clearly defined.
- During the briefing, the prescribed fire organization, specific job elements, and each individual job task will be discussed.
- Terrain, slope, and fuel conditions will be described.
- Escape routes will be clearly defined.
- A project-specific spot weather forecast will be obtained prior to ignition and for each day that ignition continues. The information therein disseminated to personnel prior to ignition. The forecast will include specific fire-behavior weather parameters. A spot weather forecast will not be necessary for low complexity burns when the Burn Boss determines ignition is occurring with sufficient snow cover, or other significant fire behavior retarding element, that will remove the possibility of escape.

2) Notification of Publics and Cooperators

Each prescribed fire burn plan will include a notification and contact list that identifies key cooperators and individuals to be notified of the prescribed fire activity. Responsibilities and timeframes for making contacts are detailed in the burn plan. The burn boss will initiate the chain of contacts as the first stage of its implementation.

2. Exceeding Parameters of the Prescribed Fire Plan

If prescribed fire prescription parameters are exceeded, but the burn remains within unit boundaries, actions must be taken to keep the fire within the unit boundary. If the fire exceeds the unit boundary or the maximum allowable perimeter and cannot be contained with available resources and funding, it will be declared a wildfire.

If the burn is declared a wildfire, then then WFDSS must be completed and determination of action determined. Spot fires may not constitute a wildfire if they can be contained in accordance with standards identified in the burn plan.

3. Air Quality and Smoke Management

a. Air Quality Issues

Smoke from wildland fire, although a natural phenomena in the northern Rocky Mountains, is fast becoming a less acceptable occurrence where rapid human development and occupancy is occurring. This is an area with generally excellent natural air quality, not affected by large population concentrations or industry.

Clean air for public health and enjoyment and pristine vistas of spectacular mountain landscapes is a notable attraction of northwest Montana. Consequently, land management decisions, as well as natural events such as wildfires, that produce large amounts of smoke for long durations can be controversial. Land and resource programmatic management plans and specific management activities must address the production, duration, and dispersal of smoke as well as compliance with existing regulations imposed by federal, state, and local agencies.

b. Program Compliance to Mitigate Adverse Smoke Impacts from Management Activities

1) Sensitive Receptors and Airsheds

Air quality over Glacier National Park is considered good to pristine. Glacier National Park and the Bob Marshall and Mission Mountains wilderness areas are designated Class I airshed areas under the 1977 Clean Air Act. The Flathead Indian Reservation is a nearby Class I airshed area. All National Forest System lands that are not included in Class I airshed areas are designated as Class II airsheds.

Down-wind receptors of smoke emissions from wildland and prescribed fires originating on forest and park lands include the developed areas of the Flathead Valley, Waterton Valley, the Swan Valley, the Mission Valley, lands of the Blackfeet Nation, the Rocky Mountain Front, and the city of Great Falls and surrounding area. Smoke producing activities on forest and park lands may result in local down-slope dispersion into local valleys influenced by drainage topography and southerly and easterly dispersion aloft influenced by prevailing winds. Smoke can flow across the Continental Divide hundreds of miles over central and eastern Montana and North Dakota from large-scale, long duration wildland burning in Western Montana.

2) Smoke Management Restrictions and Regulatory Compliance

Glacier National Park is a members of the Montana/Idaho State Airshed Group. The Airshed Group is composed of entities that conduct prescribed burning and agencies that regulate such burning. The purpose of the Airshed Group is to minimize or prevent smoke impacts to communities while using fire to accomplish land management objectives.

The Montana/Idaho State Airshed Group Operating Guide contains agreements, guidelines, plans, and procedures for the successful operation of the Airshed Group, including compliance with all federal, state, and local regulations for open burning. Each agency supports and adheres to the standards of the Airshed Group.

The Fire Management Officer will obtain necessary burn and/or air quality permits from the State of Montana prior to implementation of any prescribed burning. All wildland fire plans will include appropriate consideration of smoke production, duration, and impacts.

Glacier National Park will utilize best available control technology (BACT). BACT, for Montana burners, means those techniques and methods of controlling emissions of pollutants from an existing or proposed open burning source which limit those emissions to the maximum degree which the Department of Environmental Quality determines, on a case-by-case basis, is achievable for that source, taking into account impacts on energy use, the environment, the economy and any other costs, including the cost to the source.

Such techniques and methods may include the following:

 Scheduling of burning during periods and seasons of good ventilation:

- Applying dispersion forecasts;
- Utilizing predictive modeling results from DEQ to minimize smoke impacts;
- Limiting the amount of burning to be performed during any one time:
- Using ignition and burning techniques that minimize smoke production;
- Selecting fuel preparation methods that will minimize dirt and moisture content;
- Promoting fuel configurations that create adequate air-to-fuel ratio;
- Prioritizing burns as to air quality impact and assigning control techniques accordingly;
- Promoting alternative treatments and uses of materials to be burned.

E. Non-Fire Fuel Treatment Applications

1. Mechanical Treatment and Other Applications

a. Annual Mechanical Fuel Treatment Program Activities

Particular areas of hazardous fuels needing mechanical treatment will be assessed according to cost effectiveness and impact to the resource. Areas that have previously received treatment will be reassessed to determine when the next treatment will be scheduled.

b. Equipment and Seasonal Use Restrictions

Project equipment will be selected for effectiveness and to minimize resource impacts. Equipment selected and the timing of the treatment will be subject to approval by the Superintendent.

c. Mechanical Fuel Treatment Prescriptions and Project Monitoring

Project specific monitoring needs will be established prior to implementation and documented in the project file. The objectives of monitoring may encompass: quantifying the success of the treatment, documenting any resource damage and conducting post project assessment to identify undesirable species occurrence or other effects of the treatment.

d. Evaluation of Mechanical Fuel Treatment Projects

Upon completion of each project an evaluation will be conducted to measure how well goals and objectives were met. The evaluation will be used to

gauge the effectiveness of treatment methods, resource damage and other relevant information useful to planning future projects. This information will be documented in a project completion report.

e. Mechanical Fuel Treatment Project Record

Mechanical fuel treatments will be documented in unit project files and locations of activities recorded in GIS databases.

f. Annual planned project list and cost accounting

Glacier National Park will utilize the National Fire Plan Operating and Reporting System (NFPORS) for documenting the planning and costs of mechanical fuel treatments.

V. FIRE MANAGEMENT ORGANIZATION AND BUDGET

A. Organizational Structure of the Fire Management Programs

Fire management works within the Visitor and Resources Protection Division supervised by the chief ranger, who, in turn, works directly for the Superintendent. Line authority resides with the Superintendent.

The Fire Management Officer is directly responsible for the park's fire management program and is the contact person for fire management issues. This entails coordinating with cooperating agencies, the public, Intermountain Region Fire Management Office, and Fire Management Program Center staff.

(see Appendix 5.A.2)

B. Fire Program Funding

Wildland fire management programs are funded by annual appropriations made to the agencies, recommended by the President and authorized by Congress. Forests and parks receive allocations for preparedness programs by respective Regional distributions of appropriated funds. Those allocations are provided to finance the units' wildland fire management organizations and activities for fire suppression preparedness and hazard fuels management. Fire suppression is financed by emergency appropriations separate from the agencies' annual preparedness funding. The forthcoming Fire Program Analysis (FPA) will replace existing fire management budgeting programs for both agencies.

FIREPRO is the mechanism for funding requests and resource allocations. The Fire Management Officer is responsible for the management of all FIREPRO funding for the park. Funding is available for engine maintenance, personal protective equipment, and training on an as-needed and available basis.

C. Fire Management Within the Greater Organization

See Section V.A. (above) and Appendices 5.A.1 and 5.A.2.

D. Responsibilities for Fire Management Decisions

The Superintendent is responsible for approval of all strategic decisions pertaining to fire management actions, including those associated with managing wildfires for multiple objectives and prescribed fire.

The Incident Commander, Prescribed Fire Burn Boss will apply the Superintendent's decision criteria each day during a wildfire response action, management of a wildland fire use event, or implementation of a planned ignition, to ensure that established criteria are being met.

Roles, responsibilities and minimum qualifications for a Duty Officer can be found in Appendix 5.D.1.

1. Wildland Fires

a. Wildland Fire Decision Support System (WFDSS)

The Superintendent or designee will approve and document the decision to suppress a wildfire or manage a natural ignition for resource benefits. The Superintendent will approve and publish the strategic decisions recommended through the WFDSS process. Periodic assessment will be conducted on a timeframe of 1-14 days depending upon the complexity and status of the incident.

c. Incident Business Advisor

The Superintendent will assign an Incident Business Advisor (IBA) when a large fire suppression event requires management by a Type 1 or 2 incident management team, or anytime the projected cost of fire suppression is higher than the average for the unit.

The IBA will provide ongoing advice and documentation to the Superintendent regarding incident business issues and opportunities that can be or have been implemented to reduce the costs of fire suppression, as well as give input regarding the performance of the incident

management team's compliance with fiscal direction and administration of fiscal issues and efficient use of cost containment actions.

2. Prescribed Fires

The Superintendent will approve prescribed fire plans. Necessary compliance with NEPA, Section 106 of NHPA, or other regulations is required both on a programmatic and project basis. Any change to the approved prescribed fire plan, except those specifically permitted to be made by the burn boss, and actual implementation of the plan will be approved by the same Superintendent that signed the plan.

3. Non-Fire Fuel Treatment

The Superintendent will approve non-fire fuel treatment plans. Necessary compliance with NEPA, Section 106 of NHPA, or other regulations is required both on a programmatic and project basis.

4. Programmatic Plans

Programmatic planning meeting NEPA requirements will be conducted on an interdisciplinary basis directed by the Superintendent. The same Superintendent will approve programmatic plans.

E. Interagency Coordination Necessary to Implement the Fire Management Plan

This Fire Management Plan was originally developed as a joint plan between the Flathead National Forest and Glacier National Park. Differing agency direction on plan components necessitated a divergence from a joint plan although the two programs remain are closely knit. A joint Operations Guide is being developed to guide day to day operations and collaboration between the two agencies. As neighbors sharing a common boundary in one ecosystem, this coordination, is both logical, and necessary.

In conjunction with implementation of this joint plan, the Forest Service and National Park Service will meet formally on an annual basis to review the goals, objectives and procedures set forth by this plan and its appendices and additional related direction to the fire management program. The two agencies will share information, personnel, and resources to compliment each other's specific fire management program and project objectives.

F. Cooperation

1. Interagency Cooperators and Partners

Cooperation between international, federal, state and local partners is essential for a complete fire management program. Those cooperators include:

Alberta Ministry of Forests, Forest Service British Columbia Ministry of Forests. Forest Service

Material Labor National Dark

Waterton Lakes National Park

Blackfeet Tribal Agency

Confederated Salish and Kootenai Tribes

Bureau of Indian Affairs

Montana Department of Natural Resources and Conservation

Montana Department of Environmental Quality

Lewis and Clark National Forest

Kootenai National Forest

Lolo National Forest

Flathead County

Glacier County

Lake County

Lincoln County

Missoula County

Powell County

a. Cooperators for Initial Attack and Extended Attack

Both the Flathead NF, Lewis and Clark NF, Blackfeet Fire Management and Glacier National Park use local cooperators as closest forces and next responders for initial attack and extended attack. Those cooperators include federal, state, and local government partners from within the Kalispell Interagency Dispatch zone, NW Montana Zone partners, and adjacent coordination center "neighborhoods" from which center-to- center direct support can be obtained.

A list of local cooperators who may provide assistance directly to initial attack and extended attack can be found in Appendix 5.F.1.

G. Fire Agreements

1. Montana Cooperative Fire Management Agreement

The Montana Cooperative Fire Management Agreement ("Six-Party Agreement") serves as the instrument authorizing cooperative wildland fire management activities between the State of Montana and federal land management agencies.

Under the cooperative agreement between all wildland agencies, the annual operating plan provides specific direction for implementing the cooperative agreement. This document identifies areas of initial attack responsibility as well as reporting requirements, notification procedures, and reimbursement guidelines for any wildland fires that escape initial attack on state, federal and private lands.

The agreement and annual operating plan are located in Appendix 5.G.1.

2. Other Fire Related Agreements

It is in the best interest of the park to foster strong working agreements with local cooperators in wildland fire management. A list and copies of current agreements is located in Appendix 5.G.2.

VI. MONITORING AND EVALUATION

A. Fire Management Program Monitoring Requirements

Fire monitoring is necessary to determine protection needs, whether the prescribed fire and fuel reduction programs are meeting objectives, and determine if the use of wildland fires are within prescription and will accomplish the established objectives. The fire effects monitoring program supports objectives of the fire management program.

Goals of the fire ecology monitoring program are as follows.

- Verify that the prescribed fire program objectives are being met through documentation and analysis of fire effects.
- Increase knowledge of fire behavior and effects on ecosystems.
- Document basic information for all prescribed fires.
- Adhere to standardized data collection techniques determined by agency policy or direction.
- Use monitoring data to help develop information for the public.
- · Identify areas in which research should be initiated.
- Provide adequate training opportunities to personnel to increase skills.
- Follow trends in plant communities as related to fire effects.

The park will use short and long-term monitoring programs to measure attainment of wildland and prescribed fire objectives. Qualitative and quantitative changes in resources will be measured and the results will be used to guide modifications for subsequent prescription treatments (see Fire Monitoring Plan, Appendix 6.A.1.).

Long-term fire monitoring will measure the influence of fire on ecosystem structure and dynamics, identify areas for future research, and validate the use of fire in perpetuating the ecosystems. The variables to be monitored will be those included in immediate post fire effects, and those determined to be primary indicators of long-term change. The park will determine primary indicators by examining fire management goals and objectives, and by consulting fire effects specialists.

Short-term monitoring will follow the procedures and protocols established in the <u>NPS Fire Monitoring Handbook</u> (2003). Short-term monitoring will also determine if burn unit objectives have been achieved, such as tree and shrub mortality and fuel reduction.

Evaluation and interpretation of fire effects monitoring is the joint responsibility of fire and resource management personnel. Interpretation of monitoring results will be used to influence management decisions.

All fires within the park will be monitored according to the Fire Monitoring Plan

VII. FIRE RESEARCH

A. Previous and Ongoing Research

A better understanding of the role of fire in local ecosystems is contingent upon existing and ongoing fire history studies. This information has been and will continue to be instrumental in effective fire planning. Although much work has been accomplished on fire effects in common communities, many species and communities in the park have received little attention. As deficiencies are noted and capabilities exist or can be established, research should be initiated to determine fire effects.

USGS Fire Researcher, Carl Key, developed The Normalized Burn Ratio (NBR): a Landsat TM Radiometric Measure of Burn Severity. He used Glacier National Park as the prime area in the development of the methodology. Consequently, all fires that have occurred within the park dating back to 1988 have been mapped using this method. It has produced very detailed final fire perimeters and much more detailed and sophisticated burn severity maps.

The 1988 Red Bench Fire provided the impetus for a number of studies. Dutton and Cooper studied fire intensity mapping, Ryan and Wakimoto produced Vegetation Recovery in Sedge Meadow Communities Within the Red Bench Fire, Williard, Ryan, and Wakimoto wrote on the Effects of Wildfire on Survival and Regeneration of Ponderosa Pine in Glacier National Park, 1993. Evaluation of Cultural Resources Affected by the Red Bench Fire, Glacier National Park, by Douglas D. Scott, 1989.

Barrett, Arno, and Key described <u>Fire Regimes of Western Larch – Lodgepole Pine Forests in Glacier National Park, Montana,</u> 1991.

Information on all known past fires (points and perimeters) along with weather data back to 1910 or earlier is being compiled for a complete and integrated fire history for the park. Research on fuels plots that will be used in developing custom fuel models, obtaining crown bulk height and crown bulk density, updating vegetation maps and creating better FARSITE layers is being completed.

B. Needed Research

Implementation of the Fire Management Plan should not be contingent on completion of research concerning the fire regime and fire effects on vegetation. Instead, the Fire Management Plan should reflect the best available science. Fire research adds to the cumulative scientific understanding and knowledge of the role of fire in the described ecosystems. Subsequently, adaptive management practices evolve as valuable studies continue in conjunction with implementation of the Fire Management Plan. Fire managers need sound management-oriented scientific information with which to determine fire management objectives and strategies, natural ranges of variability for vegetation types, fire frequencies, fire effects, and historic fire intensities. Priority will be placed on investigating the role of climate change and its effects on wildland fire.

As funding allows, research will be initiated to determine fire effects where little is known on various ecosystems, habitats, threatened and endangered species and their distributional limits. Research will continue to improve custom fuel models to better predict fire behavior. Finally, research and risk analysis will continue to demonstrate how best to protect resources, identify where fire is undesirable, and determine the importance, value and potential for adverse fire impacts to those resources.

C. Fire History of the Units

Wildland fire history for the park is available in GIS accessed by the park GIS Coordinator or Fire Ecologist, and through archived firefighter reports.

VIII. PUBLIC AND EMPLOYEE SAFETY

A. Safety Concerns Associated with the Fire Management Program

Firefighter and the public safety will take precedence over all decisions and actions associated with development and implementation of this Fire Management Plan.

Glacier works cooperatively with other federal, state, and local organizations to facilitate sharing of fire management resources, public education efforts, and information concerning wildland fire suppression and the use of wildland fire activities.

The units' preparedness and specific actions plans will serve as a reference to identify the level of notification needed during the fire season. The plan will indicate actions required for public safety and health through the use of information and education efforts and restrictions and closures.

The public will receive safety and prevention messages during the season primarily through contacts with agency staff and through local news media. These contacts will serve to reduce the number of human-caused wildland fires as well as provide seasonal and event-specific wildland fire information to increase visitor safety.

1. Public Safety

Wildland and prescribed fires can be hazardous for firefighters, park employees, and the public. Private, and park developments may also be at risk from wildland fire. The safety of <u>all</u> people and developments in the area are the foremost concern of the Superintendent, Incident Commander, and Prescribed Fire Burn Boss. Escape routes and safety zones will be clearly identified for all wildland and prescribed fire incidents and projects. Public occupancy and use of park will be considered in all wildland fire project planning and specific public safety measures will be described therein and managed during implementation. In situations where public safety cannot be adequately mitigated otherwise, the Superintendent may temporarily close threatened federal land to public use and order evacuation.

Public access to fire areas should be managed to minimize the risk of harm and interference with the safe and efficient operations of fire management personnel. Total closures of fire areas may be necessary on a case-by-case basis to ensure public safety.

In the case of wildland fire with potential for rapid spread and danger to park visitors, the public will be informed and cautioned accordingly at potential access points. Park visitors, residents and neighbors will be informed of any potentially threatening fire activity and necessary safety measures.

During extreme situations that constitute an immediate threat, all efforts will be made to inform and evacuate all threatened parties as quickly as possible.

2. Firefighter Safety

The primary goal of all fire management programs and activities is to provide for the safety of our employees and cooperators engaged in implementing fire management activities. Safety is the responsibility of those assigned to manage wildland and prescribed fire and must be practiced at all operational

levels. Firefighter safety will always take precedence over risk of property and resource loss.

B. Mitigation of Safety Hazards and Risks

Mitigation of safety hazards and risks begins with the Superintendent and fire program managers having a complete understanding of policy and procedures guiding the fire management program. All fire management programmatic and project plans will include a thorough analysis and discussion of safety hazards, risks and mitigation measures. The Superintendent will not approve Fire Management Plans or authorize their implementation until they can be assured that safety mitigation measures are in place.

In the fire environment, mitigation of safety hazards and risks includes compliance with the Ten Standard Fire Orders, addressing the 18 Watch-Out Situations and adherence to the Lookouts, Communications, Escape Routes, and Safety Zones system. Incident commanders will place safety first in all decisions and actions that commit personnel to the fire environment. The risk management process identified in the NWCG <u>Incident Response Pocket Guide</u> will be used on every initial attack and extended attack to ensure that critical factors and risks associated with fireline operations are considered.

Compliance with all safe practice policies and procedures will be specific performance evaluation criteria for all personnel assigned to fire management activities on Glacier National Park.

Safe practices and hazard and risk identification and mitigation will be a paramount element of all after-action critiques of fire management activities conducted on the park.

IX. PUBLIC INVOLVEMENT, INFORMATION, AND EDUCATION

A. Local Public Involvement

Whenever possible, local businesses, resources, and assets will be utilized in support of fire management actions in the park. The intent is to involve the community in agency fire management activities in a positive manner economically, politically and socially.

Public information and education is the cornerstone of a successful interagency fire management program. Informed and supportive agency staff, the local and visiting public, and partner organizations, will contribute greatly to the success of the fire program and the resources that it is designed to benefit. Timely and accurate information will be provided to the media and public describing wildland fire management programs and the status of individual fires and management actions.

Emergency restrictions limiting or prohibiting high-risk activities such as smoking and open fires may be imposed as burning conditions worsen; and will be consistent with those restrictions implemented by surrounding fire cooperators. In extremely critical situations, some areas may be closed completely to public use for fire prevention purposes. The Superintendent will prepare a written order identifying the specific restrictions and closures and affected areas when conditions warrant. Coordinated interagency news releases will be made informing the public of all restrictions and closures.

Joint strategies for the public information and education programs will be developed in coordination with all cooperating agency's public affairs and fire management offices. Outcomes will include establishing a network of contacts, and developing a proactive process that disseminates current and accurate fire information to the agencies' staff, local community, visiting public, and media.

B. Public Information Planning in Response to Increased Fire Danger and Activity

The park manages programs to provide fire danger and activity information as part of their routine public and employee information duties. As fire danger and activity increases, the Northwest Montana Zone of the Northern Rockies Coordination Group will develop specific public information releases focused on fire safety, prevention and, as warranted, restrictions and closures.

Announcements regarding escalating fire danger and decisions to enter into restrictions and closures will be coordinated among all the partner agencies of the NW Zone.

1. Media Coordination

The cooperating agencies public affairs offices will coordinate media releases originating from the agencies during periods of normal unit activity.

During wildland fire events, incident management teams will provide information officers and staffs to directly coordinate and address media interests. The park will delegate authority to management teams to include media access and close coordination with the host unit and agency. Effective public information management, including timeliness and accuracy, is crucial in this area and will be a point of specific performance evaluation for management teams.

X. PROTECTION OF SENSITIVE RESOURCES

A. General Management Considerations

In-depth information regarding the locations and types of significant cultural resources located in the park will be kept by the Division of Science and Resources Management.

Fire management will be consistent with Glacier National Park's General Management Plan objective "to preserve the park's cultural resources unimpaired for the enjoyment of present and future generations." Glacier National Parks Resource Management Plan commits the park to inventory and evaluate cultural resources as part of park management activities. In order to meet these responsibilities and comply with other federal preservation laws, cultural resources must be identified within any project area of potential effect.

Mitigation for Cultural Resources. The fire plan commits Glacier National Park to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800 for each proposed fire project.

During planning for fuel reduction projects, including prescribed fires and manual treatments, the cultural resource specialist would be consulted. Other mitigation actions described below would be included as part of Section 106.

Wildland fires that pose a potential threat to identified cultural resources may require a qualified cultural resource specialist to provide specific on-site mitigation strategies. The following mitigating measures would be implemented as conditions warrant.

- Use protection measures in cultural sites or areas identified by the cultural resource specialist and/or local tribal officials; may include constructing fireline around sites, treating sites with approved retardant, removal of fuels around sites, etc.
- Locate, identify, and isolate sites that are vulnerable to fire effects or human activities.
- Conduct a cultural resource survey when recommended by a cultural resource specialist before prescribed fire and/or non-fire fuels management projects.
- Remove fuel concentrations in close proximity to known cultural sites.
- Educate fire crews about the need to protect cultural resources.
- Minimize ground disturbance wherever possible.
- Conduct post-fire cultural resource surveys to identify, evaluate, and document impacts.
- Perform other site-specific measures to protect cultural sites and features as indicated.
- Consult with cultural resource specialists on proposed locations of camps, staging areas, helispots, or other management actions that may disturb cultural resources.

Tribes in the area are cooperating with the park in an ongoing information exchange that provides the basis for protection protocols. As a matter of routine, tribal officials would be contacted well in advance of planned fire management project work to determine if traditional cultural sites are included in the planning area.

Fire intensity, duration of heat, heat penetration into the soil, and the use of mechanized equipment for suppression are the primary sources of damage to archeological resources (Anderson 1985). To prevent needless or excessive harm, archeologists or historians will be consulted during the planning stages of prescribed fires. The following guidelines will be adopted by the park for any wildland fire and Fire Management Officer will be responsible for ensuring that they are carried out:

- Resource based maps showing cultural resource locations will be given to resource advisors or technical specialists - archeologists and incident commanders on the firelines during project fires or when fires are near known archeological or cultural sites.
- When a fire threatens numerous cultural resources, resource advisors or technical specialists will be present to help mitigate fire suppression or rehabilitation impacts on those resources.
- Priority will be given to monitoring the use of mechanized equipment through all aspects of fire suppression and rehabilitation.

- All technical specialists assigned to a fire incident or project will be qualified for the fireline and carry standard firefighting safety equipment.
- A unique flagging color or pattern will be used to identify known archeological sites.
- A photographic record will be kept of all fire suppression activity in archeological areas and of all archeological activity.
- A resource advisor will coordinate all activities of the technical specialists with the incident commander.
- Wildland fire managers will make operational adjustments to mitigate resource concerns as long as such adjustments do not compromise the safety of the public or firefighters.

1. Cultural Resources

The protection of cultural resources is an objective and goal of fire management in Glacier National Park. Damage to cultural resources during fire management activities can occur both from the fire itself and from actions of those fighting or managing the fire.

Three major factors determine the extent of fire damage to archeological sites: fire intensity, duration of heat and heat penetration into the soil (Traylor et al., 1979).

The most important variable influencing fire intensity is fuel load. Decades of complete fire suppression have resulted in high fuel loads in some areas. The potential for an unplanned fire of high intensity poses a distinct threat to cultural resources. The use of low intensity prescribed fires to reduce these fuel loads is discussed in Chapter V, Part B of this plan.

Surface artifacts will be scorched and smoke-blackened by fire. The structure of larger stone artifacts is generally not affected (see Bloom et. al., 1991).

Overall, damage to organic cultural material begins at approximately 300 degrees Celsius (Lissoway and Propper, no date). Inorganic material, which is less vulnerable, can be exposed to temperatures of 400-500 degrees for up to 1/2 hour without undergoing severe alteration.

In contrast to surface artifacts, objects buried 5 centimeters or more below ground are generally unaffected by fire. An exception would be objects buried in proximity to burning roots, which can reach temperatures as high as 1500 degrees C (Traylor et al., 1979).

Several indirect effects of fire can also impact archeological sites. Loss of vegetative cover can lead to severe erosion and the uprooting of trees killed by the fire can fracture or displace artifacts (Lissoway and Propper, no date). Exposure of artifacts also presents a risk of looting.

Significantly, the greatest damage inflicted on cultural sites is <u>not</u> the result of fire itself but of fire suppression activities. Fire retardants may have a corrosive effect on cultural materials, although this requires further study (Lissoway and Propper, no date). Dozer activity, hand line construction, helispot clearing, mop-up activity and even rehabilitation can cut deep into the soil, damaging and displacing artifacts. In addition, fire crews that have not been briefed on the importance of archeological sites may collect artifacts.

The impact of fire suppression and rehabilitation activities can be significantly reduced with proper planning and education. Minimum impact suppression and rehabilitation activities are discussed in Chapter IV, Part B.6 and efforts to identify cultural resources and goals to mitigate damage to them are discussed in Chapter I, Part A and Chapter III Part B of this plan.

The cultural resources most susceptible to fire are the park's historic buildings. A majority of these buildings are located within developed areas. There are, however, historic buildings and historic archeological sites in the backcountry that contain wood remains. These remote sites include ranger patrol cabins, fire lookouts and homestead and mining cabins.

2. Sensitive Natural Resources

An inventory of plant and animal species found in the park is being compiled. When complete, this plan and an environmental assessment will be submitted to the U.S. Fish and Wildlife Service, and any necessary formal or informal consultation will be initiated. If a sensitive species exists within a burn unit and may be negatively impacted by fire, then management actions will be taken to prevent or lessen the damage to the species.

Water Rights Compact

As required by the National Park Service – State of Montana Water Rights Compact, the NPS will submit an annual report to the State detailing water rights activity. Specifically, this report is to include:

- 1. Actions, including fire management activities, affecting the use of a consumptive use right as described in the compact.
- 2. The initiation of new uses that were completed during the preceding year.
- 3. Any data and documents generated by the NPS during the preceding year on measurement of in-stream flow of a Category 3 or 4 stream.

3. Infrastructure, Developments, In-holdings and Other Improvements

Accepted interagency urban interface wildland fire risk mitigation techniques should be applied to prevent or reduce negative impacts to improvements,

developments, structures and other identified values at risk from wildland fire. These techniques may include, but are not limited to, hazard fuel removal, improvement of fire engine accessibility, and removal or replacement of burnable materials on or near structures.

XI. FIRE REVIEWS AND ANNUAL PLAN REVIEW

A. After-Action Reviews

The after-action review (AAR) provides fire managers, agency administrators, and all personnel involved in decision-making and actions associated with a fire management event with an opportunity to critique programmatic and individual performance for subsequent improvement of fire management operations. The AAR will include the key personnel involved with the incident, event, or project to evaluate the initial response, "hotline" (on-going fire incident) actions, planning, organization, and strategy and tactics used, safety issues and mitigation actions, and the need for new and replacement equipment. The Incident Commander, Prescribed Burn Boss, Fire Management Officer, or official who has designated fire program responsibilities, will conduct the review. The purpose of the review is to recognize and document actions that were successful, and to identify and rectify actions that were ineffective or unsafe.

The Fire Management Officer is responsible for reviewing all prescribed fires and wildfire events. The incident commander, prescribed fire manager, prescribed fire burn boss, district ranger, cultural and natural resource specialists and other appropriate staff members with special knowledge and interest in the fire should also attend this critique. The critique will document any recommendations for changes in fire procedures, prescriptions and additional training needs to increase program effectiveness and efficiency.

Wildland fire and prescribed fire critiques will be accomplished using the following guidelines:

- Incident personnel involved will participate in the review, facilitated by the incident commander or prescribed fire burn boss.
- All fires occurring on the park lands will receive a review to evaluate successes and problem areas such as: initial response, "hotline" review, control strategies employed, safety concerns, and need for equipment replacement.
- Reviews will be conducted by one of the following: Incident Commander, Prescribed Burn Boss, fire program manager or other personnel as assigned by the Superintendent or Chief Ranger.
- Critiques of incidents should occur as soon as possible following completion of meeting incident or project objectives.

 Incident management teams will participate in a closeout session to be led by the Superintendent to identify any areas of concern or of particular success and transfer responsibility for any unfinished business prior to transition to a local organization.

A more detailed discussion to assist managers in facilitating an after-action review with an example of an AAR format can be found in Appendix 11.A.1.

B. Incident Management Team Closeout and Performance Evaluation

The Superintendent will conduct closeout meetings with incident management teams to ensure successful transition of incident command back to the home unit, and to identify and evaluate incomplete fire business management issues.

Refer to Appendix 11.A.2for a format for an incident management team closeout.

Each incident management team assigned to a Type 1, 2 or 3 wildland fire will receive a performance evaluation from the responsible agency administrator.

Refer to Appendix 11.A.3 for a format for an incident management team performance evaluation.

C. Significant Event Reviews

1. Significant Event Review

Fire management program or project actions may be the subject of a regional or national review of circumstances surrounding a wildland fire or prescribed fire event. Reviews will be indicated if one of the following occurs:

- A wildland fire or prescribed fire involved serious injury or fatality, or significant property damage.
- Fire resulted in adverse public or political reaction.
- Fire resulted in unusually high cost to accomplish the selected management action, and/or to rehabilitate land or resources affected by the fire.
- Fire crossed the agency boundary into another jurisdiction without the approval of landowner or agency involved.

2. Entrapment or Fire Shelter Deployment Review

All entrapments and fire shelter deployments will be reported and investigated according to agency policy. Agency administrators should refer to the NWCG Agency Administrator's Guide to Critical Incident Management (April 1996) for assistance in accomplishing critical responsibilities associated with the occurrence of serious accidents and fatalities

Refer to Reference Manual 18 Chapter 13, Exhibit 4 & 5 for review directions and a written outline format

D. Fire Management Plan Review

This Fire Management Plan is subject to review and revision annually. Revisions will reflect changes necessary to the continued success of the fire management program.

The Superintendent will indicate their knowledge and approval of the Fire Management Plan, including any changes to the original text, with their signatures annually, with appendixes updated and incorporated by June 1.

XII. CONSULTATION AND COORDINATION

A. Fire Management Plan Writing and Editing

1. Fire Management Plan Development

The following individuals participated in the annual editing of this Fire Management Plan.

- Rick Connell, Fire, Aviation & Air Program Leader, Flathead NF
- Dave Soleim, Fire Management Officer, Glacier National Park
- Seth Carbonari, District Fire Management Officer, Flathead NF
- Dennis Divoky, Fire Ecologist, Glacier National Park
- Michael Dardis, District Fire Management Officer, Flathead NF
- Manuel Mendoza, District AFMO, Flathead NF
- Jim Reuter, District Fire Management Officer, Flathead NF

2. Forest, Park, and Interagency Contacts and Consultants

The following individuals, agencies, and cooperators were consulted in the initial development of this joint Fire Management Plan in 2003.

a. Flathead National Forest

- Carol Bienhold, Kalispell Dispatch Center Manager
- Steve Brady, District Ranger, Swan Lake RD
- · Rob Carlin, Forest Planning Staff Officer
- Gary Dahlgren, Forest Vegetation Management Program Leader
- Michael Dardis, Zone Fire Management Officer
- Dick Davies, District Fire Management Officer
- Jim Reuter, District Fire Management Officer
- Linh Davis, Forest Botanist
- Jimmy DeHerrera, District Ranger, Hungry Horse Glacier View RD's
- Lisa Krueger, District Ranger, Tally Lake RD
- Tim Light, Forest Archeologist
- Debbie Mucklow, District Ranger, Spotted Bear RD
- Steve Phillips, Forest Fisheries Biologist
- Steve Anderson, Forest Wildlife Biologist

b. Glacier National Park

- Tara Carolin, Ecologist
- Mark Foust, Chief Ranger
- Steve Gniadek, Wildlife Biologist
- Kyle Johnson, Wilderness Coordinator
- Mike McClellan, Bio-Science Technician Monitor Crew Supervisor
- Richard Menicke, Geographer
- Bill Michels, Natural Resource Specialist
- Lon Johnson, Cultural Resource Specialist
- Jack Potter, Assistant Chief of Resource Management
- Mary Riddle, Environmental Protection and Compliance Specialist
- John Waller, Wildlife Biologist

c. Other Agencies and Cooperators

- Lee Clark, Fire Management Officer, Lewis and Clark NF
- Roy H. Doore, Bureau of Indian Affairs, Blackfeet Agency
- Andrea Gilham, Fire Management Officer, Bureau of Indian Affairs, Blackfeet Agency
- Murray Houlind, Forest Protection Technician, British Columbia Forest Service
- Carl Key, GIS Specialist, USGS
- Rich Lasko, Asst Director Fire Use & Planning, USFS Northern Region
- Alan Marble, Director, Flathead County Office of Emergency Services
- Brad McBratney, District FMO, Lewis and Clark NF

- Sarah Robertson, USFS/NPS Interagency Fire Program Planner
- Tyson Running-Wolf, AFMO, Bureau of Indian Affairs, Blackfeet Agency
- Randall Schwanke, Park Warden (Fire/Vegetation Coordinator), Parks Canada
- Montana Idaho Airshed Group
- Montana Department of Natural Resources & Conservation, Northwest Lands Office

XIII. Appendices

Appendix 3.D.2	GNP Fire Management Units and Descriptions
Appendix 4.B.2	GNP Fire Management Direction and Strategies from the General Management and Resource Management Plans
Appendix 4.B.4	GNP Fire Prevention Plan
Appendix 4.B.5	Northwest Montana Restrictions and Closure Plan
Appendix 4.B.7	Fire Weather Stations and Reference Indices
Appendix 4.B.8	FNF, GNP, and NWS Fire Danger Pocket Cards
Appendix 4.B.10	GNP Preparedness Plan
Appendix 4.B.12	GNP Draw-down Plan
Appendix 4.B.14	NW Montana Type 3 Incident Organization Plan
Appendix 4.B.15	KIC Incident Organizer
Appendix 4.B.16 Commanders and	Template Delegation of Authority, T 2 and 1 Incident
	Agency Administrator Briefing (example)
Appendix 4.B.17 Commanders	Template Delegation of Authority, T5, 4 and 3 Incident
Appendix 4.B.18	MIST Guidelines
Appendix 4.C.1	NPS Parameters for Wildland Fire Use Decisions
Appendix 4.C.3	Potential Impacts from Wildland Fire in GNP
Appendix 4.D.5	GNP Five Year Fuels Treatment Schedule

FIRE MANAGEMENT PLAN - GLACIER NATIONAL PARK

Appendix 5.A.2	GNP Fire Management Organization
Appendix 5.A.3	GNP Five Year Fire Plan
Appendix 5.D.1	GNP Duty Officer Roles and Responsibilities
Appendix 5.F.1	Local Cooperators for Initial and Extended Attack
Appendix 5.G.1	Montana Cooperative Fire Management Agreement and Annual Operating Plan
Appendix 5.G.2	Other Fire Related Agreements
Appendix 6.A.1	GNP Fire Monitoring Plan
Appendix 11.A.1	After-Action Review Format
Appendix 11.A.2	Incident Management Team Closeout Format
Appendix 11.A.3	Incident Management Team Performance Evaluation